

# PATH 15

## SUPPLEMENT ANALYSIS



**Los Banos-Gates  
Transmission Project**



# **Supplement Analysis**

## **Los Banos – Gates Transmission Project (Path 15)**

**August 2001**

**Western Area Power Administration  
Sierra Nevada Customer Service Region  
U.S. Department of Energy**

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## **List of Acronyms and Abbreviations**

ACEC	area of critical environmental concern
ARB	Air Resources Board (State of California)
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
C1	candidate category 1
C2	candidate category 2
C3	candidate category 3
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
CNPS	California Native Plant Society
COHP	California Office of Historic Preservation
COTP	California - Oregon Transmission Project
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
DEIS	draft environmental impact statement
DOE	Department of Energy
E	endangered
EIR	environmental impact report
EIS	environmental impact statement
E.O.	Executive Order
ESA	Endangered Species Act
FEIS	final environmental impact statement
FR	Federal Register
kcmil	thousand circular mil
kV	kilovolt
kV/m	kilovolt per meter
mA	milliamp
MW	megawatt
NAGPRA	Native American Graves Protection and Repatriation Act
NDDB	Natural Diversity Data Base
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NRC	Nuclear Regulatory Commission
PA	Programmatic Agreement
PE	proposed endangered
PG&E	Pacific Gas and Electric Company
PM-10	particulate matter 10 microns or less in diameter
PM-2.5	airborne particles 2.5 microns or less in diameter

## **List of Acronyms and Abbreviations (cont)**

R	rare
ROD	Record of Decision
SC	species of concern
SEIR	supplemental environmental impact report
SJVAB	San Joaquin Valley Air Basin
SWP	State Water Project
T	threatened
T&E	threatened and endangered
TANC	Transmission Agency of Northern California
USFWS	United States Fish and Wildlife Service
Western	Western Area Power Administration
WSA	wilderness study area



# **Supplement Analysis for the Los Banos – Gates Transmission Project (Path 15)**

Western Area Power Administration  
Sierra Nevada Customer Service Region  
U.S. Department of Energy

## **Summary**

In May 2001, Secretary of Energy Spencer Abraham directed the Western Area Power Administration (Western) to take the first steps toward developing the Los Banos - Gates Transmission Project (the Project). The Project will relieve a major transmission bottleneck in a transmission grid section known as “Path 15” in California’s western San Joaquin Valley.

The proposed Project would include the following work:

- Building a new 500-kilovolt (kV) transmission line between Los Banos Substation and Gates Substation (near Coalinga)
- Realigning an existing 500-kV transmission line, known as Los Banos – Midway No. 2, into Gates Substation
- Modifying Los Banos, Gates, and Midway Substations to accommodate new equipment
- Potentially upgrading parts of a 230-kV transmission line known as Gates – Arco – Midway

The Project as proposed is the same as the preferred alternative described in environmental reports for the Los Banos – Gates Transmission Project, which was prepared in conjunction with the California - Oregon Transmission Project (COTP) in 1988. These two projects were the subject of a single set of documents prepared in 1988 that served as a final environmental impact statement (FEIS) under the National Environmental Policy Act (NEPA) and environmental impact report (EIR) under the California Environmental Quality Act (CEQA).

However, it should be noted that the FEIS/EIR only addressed the specific impacts of the new transmission line. Specific impacts of realigning the Los Banos – Midway No. 2 transmission line into Gates Substation, modifying the Los Banos, Gates, and Midway substations, and upgrading parts of the Gates – Arco – Midway transmission line were not assessed. These connected actions do not individually have a significant effect on the human environment because they are in previously disturbed areas or can be performed in a manner that would result in no significant impact. Reconductoring the Gates – Arco – Midway transmission line can be done with bucket trucks from existing access roads without significant impact to the environment. Likewise, modifications to

the substations are within the area of potential effect and would cause no additional environmental impacts because they are already in an area that has been disturbed. There may be additional biological and cultural impacts identified during design and preconstruction activities for the realignment of the Los Banos – Midway No. 2 transmission line into Gates Substation. These impacts would need to be addressed before construction.

Since the FEIS was prepared in 1988, Western chose to prepare a Supplement Analysis because it was unclear whether a supplemental EIS is required for the Project. The purpose of the Supplement Analysis is to determine if there are any substantial changes in the proposed action that are relevant to environmental concerns or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (40 Code of Federal Regulations [CFR] 1021.314 (c) and 1502.9 (c) (1) (i)). If there are no substantial changes to the Project impacts, Western can proceed to a Record of Decision (ROD) without preparation of a supplemental EIS. This Supplement Analysis was prepared by reviewing the 1988 FEIS environmental analysis and supporting documents and updating the information using any current information available on the Project.

This Supplement Analysis did not identify any substantial changes to the significant environmental impacts identified in the 1988 FEIS, or any new significant impacts. Based on the findings of this Supplement Analysis, a supplemental EIS is not required. If Western decides to proceed with a federal project, a ROD will be prepared in accordance with NEPA requirements. If Pacific Gas and Electric Company (PG&E) proceeds with this Project, other federal agencies may use this Supplement Analysis, along with the FEIS, to satisfy the requirements of NEPA for their actions. The results of the analysis are summarized by resource area in the following table.

**Summary Table of Key Findings  
for the New 500-kV Los Banos - Gates Transmission Line**

<b>Environmental Resource</b>	<b>1988 Finding of Significant Impacts</b>	<b>New Information</b>	<b>New Environmental Consequences</b>	<b>Follow Up Actions<sup>a</sup></b>
Irretrievable Commitment of Resources	Fuel for construction, up to 3,300 tons of topsoil lost to erosion during construction, up to 230 tons of conductor wire and 770 tons of structure steel, concrete structure footings, energy resources lost in materials manufacture	None	No	Design, construction, and operation processes will be designed to minimize the creation of wasted resources and impact on the environment
Air Quality	No	More recent regulations and changing air quality conditions	No	Mitigation as described in the 1986 DEIS and summarized in Appendix E and other mitigation as updated in the Supplement Analysis
Earth Resources	Loss of soil due to erosion	Updated safety codes	No	Geotechnical studies for site selection
Water Resources and Fisheries	No	Recreation information	No	Mitigation and coordination with the California Department of Water Resources
Vegetation	153 acres of lost vegetation	New listings of threatened and endangered species – new biological survey - new land use inventories	No	Mitigation and consultation with the United States Fish and Wildlife Service and the California Department of Fish and Game
Wildlife	Disturbance during construction – bird collisions	New listings of threatened and endangered species – new biological survey	No	Mitigation and consultation with the United States Fish and Wildlife Service and the California Department of Fish and Game

**Summary Table of Key Findings  
for the New 500-kV Los Banos - Gates Transmission Line (cont)**

<b>Environmental Resource</b>	<b>1988 Finding of Significant Impacts</b>	<b>New Information</b>	<b>New Environmental Consequences</b>	<b>Follow Up Actions<sup>a</sup></b>
Land Use and Status	Loss of productive farmlands – restricted development in right-of-way – interference with agricultural practices	Updated land use inventories – updated county land use plans	No	Mitigation and coordination with federal, state, and local agencies – negotiate easements
Visual Resources	Transmission line visibility	Increased population and updated recreational usage	No	Select least intrusive structure materials
Socioeconomics and Environmental Justice	Minor impacts on regional and local economies – loss of productive farmlands	Federal requirement to analyze environmental justice – changing economic conditions	Non-significant impacts on minority and low income populations similar to non-minority populations	Negotiate easements
Corona, Field, and Safety Considerations	No	Updated Western policies based on most recent codes and scientific findings	No	Mitigation as described in the 1986 DEIS and summarized in Appendix E and other mitigation as updated in the Supplement Analysis
Cultural and Paleontological Resources	Up to four disturbed cultural sites	Updated cultural studies provide slightly better understanding of affected environment	No	Programmatic Agreement with California Office of Historic Preservation, tribes and other Project participants

- a. Follow-up actions describe steps that the Project developer will take in designing, constructing, and operating the Project that have a bearing on environmental resources. Some steps are procedural and require consultation with government agencies, some are related to the engineering and placement of the Project, others involve mitigation measures. Some of these steps were identified in the 1988 FEIS, others are the result of changing laws, regulations, and policies.

## 1.0 Introduction

In May 2001, Secretary of Energy Spencer Abraham directed Western to take the first steps, including the preparation of environmental studies, toward developing the Los Banos - Gates Transmission Project. This directive was issued to meet the Department of Energy's (DOE) implementation of the National Energy Policy, which was released on May 17, 2001. Western is a Power Marketing Administration within DOE whose role is to market and transmit electricity from multi-use water projects in California and the western United States. The Project would relieve a transmission bottleneck in California's western San Joaquin Valley.

Transmission grid operators and regulators have names for each section of the grid. The bottleneck area is known as Path 15. Path 15 is not a single transmission line, but rather a group of interconnected lines that allow power to flow between northern and southern California and along the west coast. Transmission lines, like freeways, can get congested when too much electricity is scheduled on the lines. When this occurs, the transmission lines "jam" and the amount of power that can get to the other side is limited. When traffic isn't heavy, as much as 4,000 megawatts (MW) can pass through the bottleneck area. But when the transmission system is overloaded, as little as 900 MW gets through. The National Energy Policy states that "Path 15 does not have sufficient capacity to provide all of the power needed in northern California" and that "transmission constraints were also a primary factor in blackouts in northern California."<sup>1</sup> The Los Banos – Gates Transmission Project would upgrade Path 15 from its current transfer capacity rated at 3,750 MW to 5,000 MW or more, and would allow more electricity to flow to meet northern California's needs.

The proposed Project would include the following work:

- Building a new 500-kV transmission line between Los Banos Substation and Gates Substation (near Coalinga),
- Realigning an existing 500-kV transmission line, known as Los Banos – Midway No. 2, into Gates Substation,
- Modifying Los Banos, Gates, and Midway Substations to accommodate new equipment, and
- Potentially upgrading parts of a 230-kV transmission line known as Gates – Arco – Midway.

The Project as proposed is the same as the preferred alternative described in environmental reports for the Los Banos – Gates Transmission Project, which was prepared in conjunction with the COTP in 1988.<sup>2,3</sup> A Project description is included in Section 3.0.

## **1.1 History and Background**

In the 1980s, utility planners recognized that, at times, the flow of electric power over Path 15 could be severely limited. Western, the Transmission Agency of Northern California (TANC)<sup>a</sup>, and PG&E studied the possibility of constructing system additions to relieve Path 15 constraints as part of the planning effort for the COTP. In 1988, under NEPA and the CEQA, Western and TANC released a combined final EIS and EIR on the transmission facilities needed for the COTP.<sup>4</sup> Additional cooperating federal agencies included the Department of Agriculture, Forest Service; DOE, Bonneville Power Administration (BPA); Department of the Interior, Bureau of Land Management (BLM); and the U.S. Department of the Army Corps of Engineers. The Responsible State Agency was the California Public Utilities Commission (CPUC). The plan included system additions for the Los Banos – Gates Transmission Project to relieve the Path 15 bottleneck. The Los Banos – Gates Transmission Project was to have been built and operated by PG&E.

The COTP was built and placed into service in 1993.<sup>5</sup> However, for a variety of reasons, the Los Banos – Gates Transmission Project was not constructed. Western's ROD for the COTP stated that the Los Banos – Gates Transmission Project was not constructed because PG&E determined that it could meet its contractual obligations without constructing the transmission line.<sup>6,7</sup>

Western, the CPUC, and PG&E are now reconsidering the construction of the Los Banos – Gates Transmission Project due to the need for additional operational flexibility and capacity between northern and southern California. Because future ownership of the transmission line is uncertain, both Western and PG&E (through the CPUC) are conducting environmental studies for the Project. Western is also looking at potential private participation in the Project, and published a Request for Statements of Interest from parties interested in helping finance and co-own the system additions.<sup>8</sup> The results from the Statements of Interest should be available in late August, 2001.

The decision for Western to proceed with the Project would be based on the outcome of the Supplement Analysis and the Secretary of Energy's decision on the Statements of Interest. The decision for PG&E to proceed with the Project would be based on the outcome of the CPUC's environmental studies and approval of PG&E's conditional Certificate of Public Convenience and Necessity (CPCN) Application to construct the Los Banos - Gates 500-kV Transmission Project (submitted to the CPUC on April 13, 2001), as well as a decision by PG&E to construct.

## **1.2 Supplement Analysis Purpose and Organization**

Since the FEIS was prepared in 1988, Western chose to prepare a Supplement Analysis because it was unclear whether a supplemental EIS is required for the Project.

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<sup>a</sup> TANC is a joint powers agency consisting of 11 municipal utilities, two irrigation districts, a utility district, and a rural electric cooperative.

The purpose of the Supplement Analysis is to determine if there are any substantial changes in the proposed action that are relevant to environmental concerns or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (40 CFR 1021.314 (c) and 1502.9 (c) (1) (i)). If there are no substantial changes to the Project impacts, Western can proceed to a ROD without preparation of a supplemental EIS. This Supplement Analysis was prepared by reviewing the 1988 FEIS environmental analysis and supporting documents and updating the information using any available current information available on the Project.

This Supplement Analysis did not identify any substantial changes to the environmental impacts identified in the 1988 FEIS or any new significant impacts. Based on the findings of the Supplement Analysis, a supplemental EIS is not required.

In this Supplement Analysis, sections describing environmental features appear in the same order as they do in the 1988 FEIS. Section 2.0 describes environmental processes, including the scope and findings of the 1988 FEIS, a definition of a supplement analysis, and a discussion of CEQA. Section 3.0 describes the proposed Project and briefly discusses engineering assumptions and contractual relationships.

The remaining sections describe impacts from the proposed Project on environmental resources. Each section summarizes the 1988 findings, describes new information that has become available, discusses potential environmental consequences arising from the new information, and summarizes Western's follow-up actions, including mitigation and coordination activities. Additionally, a section on environmental justice has been added to describe the impacts to minority and low-income populations. A summary of mitigation measures from the 1986 draft EIS (DEIS) is included in Appendix E of this Supplement Analysis. These were reviewed and, where appropriate, new measures were identified in the Supplement Analysis text. Section 7.0, Vegetation, contains figures showing the natural vegetation and agriculture and aerial images. Section 9.0, Land Use and Status, contains photographs of the proposed corridor. Appendices include the following: A, Biological Resources; B, Environmental Justice; C, Electrical Effects; D, Cultural Resources; and E, Summary of Mitigation Measures in the 1986 DEIS, Volume 2B, as Modified in the 1988 FEIS.

## **2.0 Environmental Processes**

Because of the urgency to relieve the transmission bottleneck, as well as the uncertainty of final ownership, both the CPUC and Western have begun environmental analyses for the Los Banos – Gates Transmission Line. The CPUC has initiated an environmental review of the proposed Project under CEQA. And Western has prepared this Supplement Analysis under DOE's NEPA implementing procedures.

Participants in the preparation of this Supplement Analysis include:

**Federal Agencies**

- Western
- BLM
- U.S. Department of the Interior, Bureau of Reclamation

**State Agencies**

- CPUC

**Other Participants**

- PG&E
- Battelle Memorial Institute

## **2.1 Summary of Findings from the 1988 FEIS and EIR**

TANC and Western published a FEIS for the COTP and Los Banos – Gates Transmission Projects in 1988. Development of the FEIS was supported by the preparation of multiple volumes of reports and technical appendices published as part of the DEIS. The FEIS noted updates and changes to be made in the DEIS documents, as well as responses to public comment, but did not republish the text of the documents. Thus, many references in this Supplement Analysis are to documents published in the 1986 DEIS, even though the FEIS was released in 1988.

One document is particularly important, an environmental report prepared specifically for the Los Banos – Gates Transmission Project. This environmental report is available on-line at Western’s Web site at: <http://www.wapa.gov/SN/path15links.htm>. This report was published as Volume 2B of the 1986 DEIS. Additionally, Volume 3B, Technical Appendices, contains various technical reports for the resource areas for the Project, and Volume 4B consists of maps and aerial images of the Project area. Together, these documents are referred to as the “1986 DEIS” in this Supplement Analysis.

The study area for the 1986 DEIS covers the affected environment for constructing the 84-mile-long 500-kV transmission line, realigning an existing 500-kV line, known as Los Banos – Midway No. 2, into Gates Substation, and modifying the Los Banos, Gates, and Midway Substations to accommodate new equipment. Specific impacts of the 84-mile-long 500-kV transmission line are discussed in detail in the 1986 DEIS. Specific impacts of the realignment of the Los Banos – Midway No. 2 transmission line into Gates Substation, upgrading parts of the Gates – Arco – Midway transmission line, and the substation modifications were not addressed. However, these connected actions do not individually have a significant effect on the human environment because they are in previously disturbed areas or can be performed in a manner that would not result in significant impacts.



The 1986 DEIS states that 24.4 miles of the 70-mile-long Gates – Arco – Midway transmission line would be reconductored and that this work is similar to other transmission line maintenance (Volume. 2B, pp. 5-1 – 5-2). The Gates – Arco – Midway transmission line currently consists of one 230-kV and one 115-kV transmission line. The 115-kV transmission line could be reconfigured to a 230-kV line so as to establish two 230-kV circuits between these substations. This work would be done with bucket trucks from existing access roads without impact to the environment. Likewise, modifications to the substations are within the area of potential effect and would cause no additional environmental impacts because they are already in an area that has been disturbed. The primary impact from these Project elements is a temporary decline in air quality due to construction activities. This impact would be mitigated by use of standard construction practices and is not considered significant.

Additional biological and cultural impacts could be identified for the realignment of the Los Banos – Midway No. 2 transmission line into Gates Substation due to the relocation of six structures. These impacts would be identified during preconstruction activities such as geotechnical work, design, and additional biological surveys. These specific impacts would need to be addressed before construction.

The 1988 FEIS concluded that the Project would cause unavoidable adverse environmental impacts from construction of the new transmission line. These types of impacts occur when adopted mitigation measures are applied to significant impacts but are not totally effective in eliminating the impact. In its ROD for the COTP, Western did not address impacts resulting from the Los Banos - Gates Transmission Project. Western's ROD stated that the Los Banos - Gates Transmission Project was not constructed because PG&E determined that it could meet its contractual obligations without constructing the line.<sup>9</sup>

However, TANC did provide a concise summary of unavoidable impacts resulting from the Project. In its *Certification of the Final Environmental Impact Report for the California - Oregon Transmission Project, the Los Banos-Gates Transmission Project, and the Pacific Northwest Reinforcement Project, and Findings Pursuant to the California Environmental Quality Act*, TANC summarized the impacts from the Los Banos – Gates Project in the following paragraphs. Notes that were not part of the original document have been added in brackets to differentiate between temporary and long-term impacts. The majority of impacts are temporary and occur during construction.<sup>10</sup>

“Unmitigable, unavoidable adverse impacts would occur from the removal of vegetation due to the clearing for structure footings, access roads, conductor pulling and tension sites and construction yards [temporary], the permanent replacement of vegetation and wildlife habitat with structure footings and access roads, the disturbance of wildlife habitat during construction activities [temporary], the collision of birds with Project conductors, restricted development (no building or structures, wells or trees in excess of 15 feet in height) within the

Project right-of-way, loss of productive farmland, interference with agricultural equipment and operation (including interference with irrigation practices, aerial applications, and weed and pest control), and visual impacts resulting from views of the Project from designated scenic highways including Interstate 5 and State Highway 33 and from San Luis Dam, Los Banos Reservoir, Little Panoche Reservoir, and the proposed Los Banos-Grandes Reservoir [which has not been developed].”

TANC also described the following irreversible commitment of resources from the preferred western route:

- “Up to 120 acres of grassland and scrub vegetation cleared for or replaced by transmission line rights-of-way, structure bases, access roads, and substations would be irreversibly lost. This vegetation, while not critical or sensitive, supports many animal communities, and both the vegetation and the habitat it provides may only be partially restored in Project areas through revegetation or reclamation if the structure sites, access roads, rights-of-way, and substation sites are abandoned.”
- “Activities on up to 31 acres of agricultural land and over 11 miles of irrigated cropland would be restricted or eliminated as the result of right-of-way construction Project placement, and the value of these lands would be irreversibly lost during the life of the Project. This would also result in the loss of revenue from these lands.”
- “As many as four archeological sites would be irreversibly altered or destroyed. These resources would be lost forever and, short of documenting their location and carefully excavating finds associated with each site, there is no way to replace artifacts which are disturbed by construction activities.”

TANC reported the following irretrievable commitments of resources:

- “Fuel for equipment during construction of the transmission line. Fuel would also be needed for routine operations and maintenance activities.”
- “Up to 3,300 tons per year of topsoil which experiences either wind or water erosion may be irreversibly lost as the result of Project construction or operation. One inch of topsoil takes many hundreds of years to form, and once removed or displaced is never again available for revegetation or reclamation of the site from which it came.”
- “Up to 230 tons of conductor wire and 770 tons of tower steel. This material can and would be recycled as much as possible but not all of it would be totally reusable and some might have to be discarded.”
- “Concrete for tower footing and substation foundations. This concrete could be recovered but would be generally unusable except as fill material.”
- “Energy and fuel utilized in the manufacturing and delivery of steel, conductor, and other physical components. As mentioned above, steel and conductor wires

would be salvaged, but only portions of the original energy utilized in manufacturing might be recovered.”

## **2.2 Supplement Analysis**

Under DOE’s procedures for implementing NEPA, a supplement analysis is prepared when it is unclear whether a supplemental EIS is needed. In general, the supplement analysis discusses the circumstances that are pertinent to deciding whether to prepare a supplemental EIS. In particular, this Supplement Analysis has been prepared to contain sufficient information for Western to determine whether (1) an existing EIS should be supplemented; (2) a new EIS should be prepared; or (3) no further NEPA documentation is required (10 CFR 1021.314 (c) (2)).

## **2.3 California Environmental Quality Act**

The environmental review requirements of both NEPA and CEQA may need to be satisfied for the Project. To construct a new non-federal transmission line of 200 kV or more in California, a regulated, electric investor-owned utility must obtain a CPCN from the CPUC.<sup>11</sup> Before issuing the CPCN, the CPUC must prepare an EIR, or utilize a comparable document, if it “determines that there is substantial evidence that any aspect of the Project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the Project is adverse or beneficial.”<sup>12</sup>

CEQA provides that an EIS prepared under NEPA can satisfy the EIR requirement. In general, state and local agencies are encouraged to use NEPA documents to replace CEQA documents if the NEPA process is proceeding faster than the CEQA process and the NEPA document complies with CEQA (Guidelines Section 15221). Further, the state or local agency may use the NEPA document without recirculation if the NEPA document is circulated as broadly as required by CEQA and if the agency gives notice that it intends to use the NEPA document (Guidelines Section 15225).<sup>13</sup> In addition, guidelines for implementation of CEQA issued by the California Secretary of Resources encourage the lead agency to prepare a combined EIR/EIS in appropriate cases.<sup>14</sup> Most of the elements of an EIS will also satisfy the requirements under California law for an EIR. One element that may need additional detail is mitigation. The guidelines implementing CEQA provide that before an EIS can be used as an EIR, mitigation measures and growth-inducing impacts will need to be considered in the document.<sup>15</sup>

As noted above, the need for an EIR depends on evidence of a significant effect on the environment. The guidelines implementing CEQA provide the following definition for significant effect on the environment:

“A substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic

significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.”<sup>16</sup>

In addition, the Environmental Checklist Form (Appendix G of the guidelines) suggests that a proposed project will have a significant impact if it has the potential to:

1. Degrade the quality of the environment
2. Substantially reduce the habitat of a fish or wildlife species
3. Cause a fish or wildlife population to drop below self-sustaining levels
4. Threaten to eliminate a plant or animal community
5. Reduce the number or restrict the range of a rare or endangered plant or animal
6. Eliminate important examples of the major periods of California history or prehistory.

Proposed projects also have significant impacts if:

1. Impacts are individually limited, but cumulatively considerable (“cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects); or
2. The project has environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.<sup>17</sup>

CPUC has similar tests for significance with an additional criterion that impacts will be deemed to have a significant effect on the environment if the effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.<sup>18</sup>

The CPUC, the responsible state agency for this Project, is currently preparing a supplemental environmental impact report (SEIR) to evaluate the potential environmental impacts of PG&E’s conditional CPCN application to construct the Los Banos - Gates 500-kV Transmission Project (submitted to the CPUC on April 13, 2001).<sup>19</sup> The Draft SEIR is expected to be released in early October 2001 and a Final SEIR in January 2002.

### **3.0 Proposed Action**

A complete description of the action proposed in 1988 appears in Volume 2B, Chapter 2 of the 1986 DEIS.<sup>20</sup> The chapter describes the Project participants’ contractual obligations, engineering assumptions, right-of-way acquisition, and construction practices. This information was recently referenced and summarized in PG&E’s CPCN submitted to the CPUC. The 1986 DEIS states that PG&E shall provide firm bi-directional transmission services over its facilities between Tesla and Midway

Substations. The Los Banos – Gates Transmission Project was intended to reinforce the transmission system to help meet this obligation.

The Project will include the following components:

#### **Los Banos - Gates 500-kV Transmission Line (new)**

- Construct approximately 84 miles of single-circuit, overhead 500-kV transmission line from Los Banos Substation, three miles south of Santa Nella Village in Merced County, to Gates Substation, 12 miles east of Coalinga in Fresno County. The preferred route is approximately two miles west of and parallel to Interstate 5. The proposed line will likely consist of bundled 2,300 kcmil (thousand circular mil [1.75 inch-diameter]) aluminum conductors, installed on self-supporting, rectangular-base lattice structures that will vary in height from approximately 100 feet to 160 feet. New access roads for maintenance of the transmission line are also required. Construction sites such as lay-down areas and pulling sites will also be used, but will be temporary.

#### **Los Banos Substation**

- Modify the existing PG&E Los Banos 500-kV Substation by adding a new bay, two new circuit breakers, shunt capacitors, miscellaneous electrical equipment, and possibly a new capacitor bank. Construction would be within the existing boundaries of the substation.

#### **Gates Substation**

- Modify the existing PG&E Gates 500-kV Substation by adding a new bay, two new circuit breakers, new series capacitor bank, shunt capacitors, and miscellaneous electrical equipment. Construction would be within the existing boundaries of the substation.

#### **Midway Substation**

- Modify the existing PG&E Midway 500-kV Substation, located in Kern County, by adding new shunt capacitors, and miscellaneous electrical equipment. Construction would be within the existing boundaries of the substation.

#### **Los Banos - Midway No. 2 500-kV Transmission Line**

- Realign the existing PG&E Los Banos - Midway 500-kV No. 2 transmission line to loop into Gates Substation. This realignment of 7,000 feet of existing line will result in the removal of seven structures and the construction of six structures adjacent to the existing Los Banos - Midway 500-kV No. 1 transmission line. The realignment would be done within PG&E's existing right-of-way.

#### **Gates – Arco – Midway 230-kV Transmission Line (existing, owned by PG&E)**

- Reconductor / reconfigure 24.4 miles of the 70-mile-long transmission lines between Gates Substation and Midway Substation, which currently consists of

one 230-kV and one 115-kV transmission line. The 115-kV transmission line could be reconfigured to a 230-kV line so as to establish two 230-kV circuits between these substations. The reconductoring would be done by bucket truck within PG&E's existing right-of-way on existing access roads.

### **3.1 New Information**

The engineering description outlined in the 1986 DEIS includes the electrical parameters required for the line, including size of conductor (line size), minimum span length, structure strength, operating voltage, etc. Changes to the electrical parameters could occur during the design phase of the Project based on availability of materials and updated electrical codes. These would not have any effect on the Project's impacts.

Construction practices include surveying, clearing, determining access requirements, establishing construction facilities, installing foundations, assembling structures, installing conductors, and cleaning up and removing construction facilities. The 1986 DEIS adequately addresses these practices and, if required, proposes mitigation measures to minimize environmental impacts. Western has also developed standard construction specifications that contain generic mitigation measures that would be binding on the construction contractor should Western build the transmission line.

PG&E is currently conducting a systems impact analysis to determine what effects the addition of the new line would have on surrounding transmission lines and equipment under 2001 conditions. Results of this study will determine if upgrades to the Gates – Arco – Midway transmission line are required and whether additional substation modifications are needed.

Design and construction of the Project is scheduled to begin in the fall of 2001, or as soon as necessary approvals are obtained, and construction could be completed as early as January 2004.

PG&E's contractual obligations under the COTP are being met without construction of the Project. However, additional load growth in northern California has placed additional requirements on the transmission grid; the transfer capacity of Path 15 needs improvement to relieve congestion. In addition, the contractual participants for the Project may change.

### **3.2 Environmental Consequences**

The engineering assumptions and construction approach as outlined in the 1986 DEIS are acceptable for a new Los Banos – Gates Transmission Project.

Some environmental conditions have changed with the passage of time. These changes are noted later in this analysis in the discussions for each environmental resource.

A change in developers is strictly economic and would not directly affect physical or local and regional socioeconomic environmental effects.

### **3.3 Follow-Up Actions, Mitigation, and Coordination**

Design, construction, and operation processes would be performed to minimize the creation of wasted resources and impact on the environment. No additional analyses would be required unless substantial changes were made in Project design or construction practices. If changes were needed in engineering or construction approaches, Western will re-evaluate impact levels and irretrievable and irreversible commitments of resources. Minor changes will be documented in a final Project completion report. If Western determines that a change would have a significant impact on environmental resources, the need for a supplemental EIS would again be evaluated.

If Western decides to proceed with a federal project, a ROD will be prepared in accordance with NEPA requirements. Informal Section 7 consultation under the Endangered Species Act (ESA) (as described in Sections 7.0 and 8.0 of this Supplement Analysis) and Section 106 consultation under the National Historic Preservation Act (see Section 13.0) has begun. Western will determine if formal consultation is required. If Western needs to document decisions prior to completion of these consultations, a conditional ROD would be prepared, conditional on the outcome of these consultations. A Final ROD would be prepared when these consultations are complete, and prior to any construction activities. Additionally, a Mitigation Action Plan would need to be prepared before taking any action that is subject to a mitigation commitment (40 CFR 1021.331 (a)).

### **4.0 Climate and Air Quality**

Sections 3.1 and 4.1 of the 1986 DEIS describe the climate of the Project area and possible impacts to air quality. The report notes that concentrations of ozone and total suspended particulates in the San Joaquin Valley, including Fresno and Merced counties, exceeded ambient air quality standards. The report notes that most of the particulate emissions in the two counties were derived from farming operations, with farming operations and road dust being the primary sources in the Project area. The report concludes that the temporary incremental increases in dust and exhaust resulting from transmission line construction would not significantly change ambient air quality. However, in its certification, TANC notes that as much as 3,300 tons per year of topsoil which experiences either wind or water erosion may be irreversibly lost as the result of Project construction or operation.

## 4.1 New Information

Air quality in the San Joaquin Valley has generally improved in the last decade. However, the Valley continues to be in federal and state nonattainment for ozone and particulates, as shown in Table 1.

**Table 1. Ambient Air Quality Standards and Valley Attainment Status<sup>a</sup>**

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone - One hour	Nonattainment/serious	Nonattainment/severe
Ozone - Eight hour	Designation to be determined	No state standard
PM-10	Nonattainment/serious	Nonattainment
PM-2.5	Designation to be determined	No state standard
Carbon Monoxide - Fresno Urbanized Area	Attainment <sup>b</sup>	Nonattainment <sup>c</sup> /moderate
Carbon Monoxide - Remainder of Fresno County	Unclassified/attainment	Attainment
Carbon Monoxide - Merced, Madera, and Kings Counties	Unclassified/attainment <sup>b</sup>	Unclassified
Carbon Monoxide - Kern (SJVAB portion), Tulare, Stanislaus, San Joaquin	Unclassified/attainment <sup>b</sup>	Attainment
Nitrogen Dioxide	Unclassified/attainment	Attainment
Sulfur Dioxide - Kern County (SJVAB portion)	Attainment	Attainment
Sulfur Dioxide - All Other Counties	Unclassified	Attainment
Lead (Particulate)	No designation	Attainment
Hydrogen Sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment
Visibility Reducing Particles	No federal standard	Unclassified

a. Table taken from <http://www.valleyair.org/aqinfo/attainment.htm>; SJVAB – San Joaquin Valley Air Basin.

b. Carbon monoxide: 40 CFR 52 and 81 -- Fresno Urbanized Area, Bakersfield Metropolitan Area, Stockton Urbanized Area and Modesto Urbanized Area redesignated on Mar. 31, 1998, effective Jun. 1, 1998.

c. Carbon monoxide: Area has reached attainment status. The request for redesignation was approved by the Air Resources Board (ARB) on Sep. 24, 1998. The redesignation became final upon action by the California Office of Administrative Law on Aug. 26, 1999.

Emissions inventories for Merced and Fresno counties are consistent with those presented in the 1986 DEIS in that mobile sources are the primary source of pollutants that form near surface ozone, and roads and farm operations continue to be a substantial source of particulates.<sup>21</sup>

Particulate regulation has evolved to regulate PM-10 and PM-2.5 rather than total suspended particulate. The term “PM-10” refers to particulate matter 10 microns or less in diameter. The term “PM-2.5” applies to airborne particles with diameters less than 2.5 microns.

The most recent data (1993) from the closest monitoring site in Los Banos shows no violation of state or federal annual ambient air quality standards for particulates.<sup>22</sup>

Federal legislation governing air quality, the Clean Air Act (42 USC 7506 (c)), underwent major revision in 1990. The revisions were complex and extensive. Three



key changes to the law were in sections containing acid rain controls, augmented air toxics provisions, and a new system for preventing smog and attaining air quality standards.<sup>23</sup> The 1990 amendments established a much longer regulatory time horizon. For example, the California ozone attainment program was given a 20-year program rather than the five-year programs typical before 1990.

Under §176(c) of the Clean Air Act, actions of federal agencies are to conform to applicable state implementation plans designed to achieve ambient air quality standards. EPA has issued regulations implementing the general conformity requirement in §176 (c) at 40 CFR 51 Subpart W and 40 CFR 93 Subpart B. States are to revise their applicable implementation plans designed to achieve ambient air standards to include criteria and procedures for assessing the conformity of federal actions to the applicable implementation plan (40 CFR 51.851). The Project is located within the boundaries of the San Joaquin Valley Air Pollution Control District. The District adopted Rule 9110 implementing general conformity requirements.

Under §51.850(c)(1) of the District's Rule 9110, a federal agency is to make a determination that an action under consideration by the agency conforms to the applicable implementation plan except when a NEPA analysis was completed prior to the effective date of the general conformity rule. The FEIS for the Project was completed in 1988 and the District's general conformity Rule 9110 was adopted in October 1994. No alternatives to the Project that were not covered in the 1988 EIS are under consideration. Consequently, the Project is not subject to the general conformity requirements in the District's Rule 9110.

The Project would produce particulates during construction. The San Joaquin Valley Air Pollution Control District adopted rules for controlling fugitive PM-10 emissions from construction sites in 1993 and amended them in 1996.<sup>24</sup>

## **4.2 Environmental Consequences**

No new information suggests that transmission line construction or operation would be a significant source of air pollutants. Some increase in particulate matter would occur during construction, but the increase would be temporary as was noted in the 1986 DEIS.

## **4.3 Follow-Up Actions, Mitigation, and Coordination**

Transmission line and access road construction and operation procedures would include mitigation measures, such as those described in the 1986 DEIS, to minimize dust. Access roads would be selected to minimize the creation of new roads. Mitigation measures contained in the DEIS and the San Joaquin Valley Air Pollution Control District's guidance for fugitive dust control for the construction industry would be

followed to reduce particulate emissions.<sup>25</sup> Dust control efforts are required during all construction activities, including:

- Grubbing, scraping, trenching, and leveling
- Storage and transportation of soil
- The use of unpaved roads, parking and storage areas
- Trackout onto paved roads
- Demolition.

## **5.0 Earth Resources**

Sections 3.2 and 4.2 of Volume 2B of the 1986 DEIS describe earth resources that affect or are affected by the Project. These include geologic and soils resources and factors such as physiography and slope that relate to the ground surface and seismicity. Oil fields are one resource described in the 1986 DEIS. The report indicates the following:<sup>26</sup>

“3.5 miles of productive oil fields will be crossed. Oil fields present a siting constraint to the Project. Well drilling and normal operations and maintenance required for oil wells (i.e., use of cranes, towers) are not compatible with right-of-way restrictions for a transmission line. In addition, the increased fire hazard in an oil field and associated risk of electrical arcing could be a concern.”

Most issues related to earth resources can be mitigated during Project design and selection of structure site and access road locations, and by placing constraints on activities within the transmission line right-of-way easement.

The 1986 DEIS concluded that no special measures would be required because of seismicity.

## **5.1 New Information**

The National Electrical Safety Code (NESC) addresses issues of transmission line safety, including clearances around obstacles such as oil fields. The code is updated periodically, with a new version expected in 2001.

Updated mineral surveys are available to aid in geotechnical studies for design of foundation footings.

A visual survey of the proposed corridor in July 2001 found an oil drilling operation on Phelps Road near the point where the tentative transmission line corridor would cross the road. This operation will be addressed during the transmission line route selection process.

## **5.2 Environmental Consequences**

No new environmental issues were identified.

## **5.3 Follow-Up Actions, Mitigation, and Coordination**

Geotechnical studies would be needed to select specific structure locations.

Transmission line design would meet or exceed all safety requirements of the most recent NESC and applicable seismic codes. Mitigation measures contained in the DEIS would be followed to minimize or avoid impacts from soil compaction, erosion, horizon mixing and other potential effects. No new mitigation measures are proposed, and impacts will be reduced to less than significant levels.

## **6.0 Water Resources / Fisheries**

Sections 3.3 and 4.3 of Volume 2B of the 1986 DEIS describe water resources and fisheries. The report notes that since no perennial streams would be crossed by this Project, water quality would not be significantly affected. The report indicates that Los Banos Creek could be crossed with no special engineering or design specifications. At the Little Panoche Reservoir, structures could be sited downstream to avoid significant impact on the operation of the detention dam or interfere with its facilities. The DEIS indicates there are plans for developing the Los Banos Grandes Offstream Storage Project.

## **6.1 New Information**

New information is available on recreational uses of manmade features such as Los Banos Reservoir and Little Panoche Reservoir.

The Los Banos Grandes Offstream Storage Project has not been built. The California Department of Water Resources (CDWR) has placed this project on hold pending a CALFED decision on Delta improvements. The storage project could then be reevaluated in consideration of those improvements and of the needs and financial capabilities of State Water Project (SWP) contractors.<sup>27</sup> The proposed transmission line would span the Los Banos Creek between the tail of the Los Banos Reservoir and one mile east of the proposed Los Grandes Reservoir (Volume 4B, DEIS). Therefore, the new transmission line would not impact this storage project if built.

## **6.2 Environmental Consequences**

No new environmental issues are apparent.

## **6.3 Follow-Up Actions, Mitigation, and Coordination**

Mitigation measures contained in the 1986 DEIS to reduce Project impacts on water quality to less than significant levels would be followed. The DEIS also indicates that

careful placement of transmission structures would be needed when spanning water bodies. Coordination with the CDWR would be needed, as structure locations near water bodies are determined.

## 7.0 Vegetation









Significant impacts were identified for the loss of vegetation. The 1986 DEIS discusses vegetation in Sections 3.4 and 4.4 of Volume 2B. The report notes that approximately 153 acres of vegetation in the preferred route could be permanently replaced by structure bases and access roads. Of this land, 119.3 acres are grassland and scrub, 31.4 acres are farmland, and 1.9 acres are other land. Temporarily disturbed vegetation amounts to 240 acres made up of 186.4 acres of grassland and scrub, 48.6 acres of farmland, and 3.1 acres of other land. In addition, construction yards and work camps would temporarily disturb 21.1 acres. Potential adverse impacts on sensitive plant communities can be avoided during the selection of the transmission line alignment and during the siting of structures and access roads.

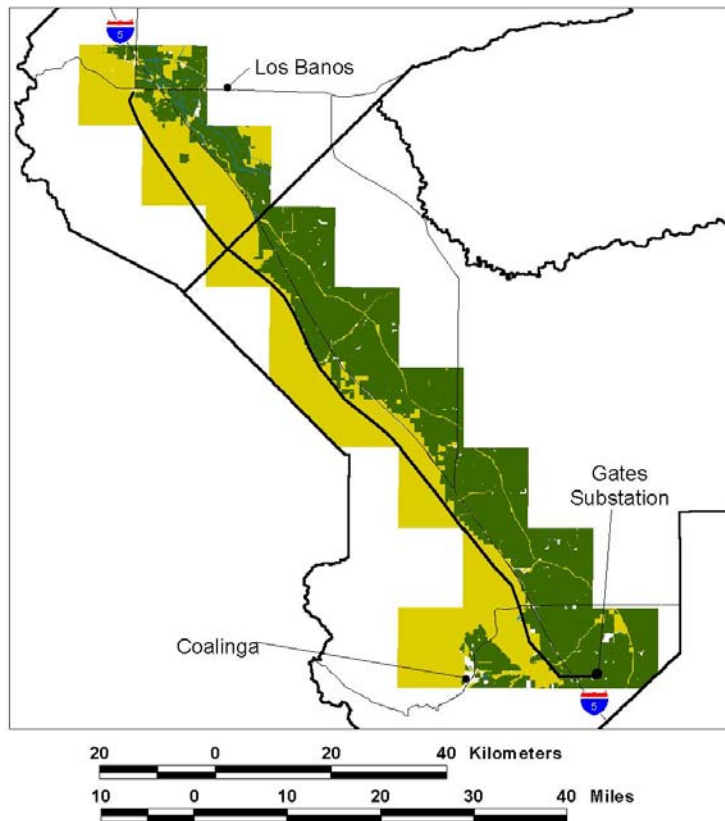
The 1986 DEIS indicates that only three plant species of concern were observed within the Project area. Although Table E-4 in Volume 3B of the DEIS shows four species as being present, the accompanying text indicates that Arbrura ranch jewelflower (*Streptanthus insignis* var. *lyonii*) was known only from a couple of populations located several miles west of the Project area; however, because little was known about the taxon at the time, it was felt there was a good chance for occurrence within the Project area. Of the three other species observed in the 1988 studies, one, the vernal fiddleneck (*Amsinckia vernicosa* var. *vernicosa*), is no longer considered a species of concern and was not considered within the 2001 field surveys. The other two species, forked fiddleneck (*Amsinckia vernicosa* var. *furcata*) and Idria buckwheat (*Eriogonum vestitum*), were observed during the 2001 surveys.

## 7.1 New Information

The CDWR has updated its inventory of agricultural lands. These updates include aerial photographs taken of Fresno County in 2000 and updated inventory maps of agricultural lands for both Merced (1995) and Fresno (1994) counties.<sup>28</sup> The inventory maps and aerial imagery are consistent with the aerial photographs used for the 1986 DEIS,<sup>29</sup> confirming that the majority of land is natural vegetation or grassland rather than agricultural land. Figures 1 and 2 show how the proposed transmission corridor primarily skirts to the west of developed agricultural lands, thus avoiding impacts to agriculture.

## Los Banos - Gates Transmission Line

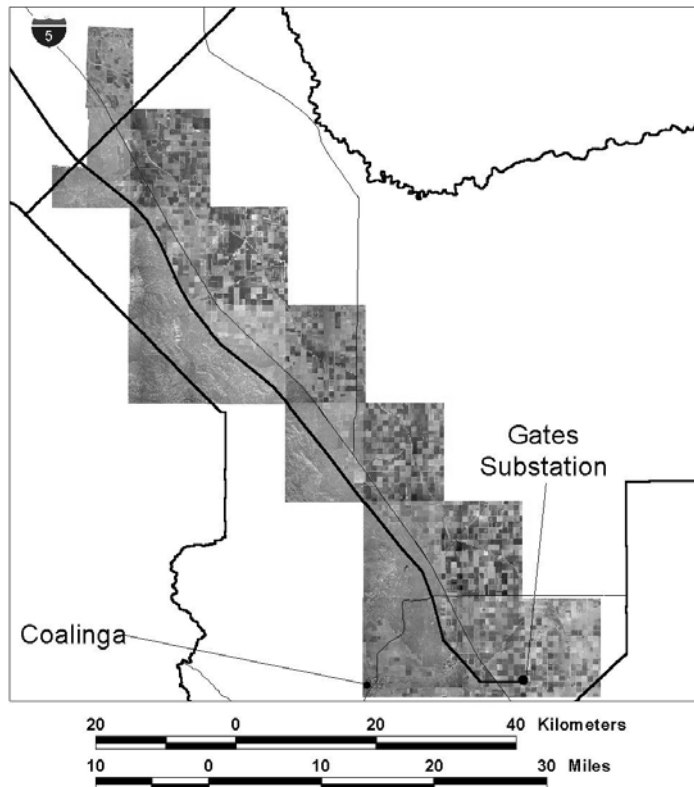
-  Highways
-  Counties
-  Transmission Line
-  Cities
- Land Uses**
  -  Agriculture
  -  Native Vegetation
  -  Surface Water
  -  Urban



**Figure 1. Natural Vegetation and Agricultural Vegetation in the Project Area**

## Los Banos - Gates Transmission Line

-  Highways
-  Counties
-  Transmission Line
-  Cities



**Figure 2. Aerial Photography Confirms Vegetation Types in Fresno County**

PG&E commissioned a field survey of the Project corridor for special status plants and wildlife in April 2001. The resulting report (Jones & Stokes 2001)<sup>30</sup> includes a considerable amount of updated information about the special status species in the vicinity of the proposed Project area. An analysis of the current species of concern is included in Appendix A. This analysis is summarized below.

There have been considerable changes in the list of threatened and endangered (T&E) species that would be potentially affected by the Project. Additionally, the federal or state status of some of these species has changed since 1988. The construction of the Project itself would be performed as was envisioned in 1988; therefore, the kinds of potential effects resulting from construction, operation, and maintenance of the transmission line would be the same as those described in the 1986 DEIS. A description of the changes in the ESA is available in Appendix A, along with an analysis of impacts to plants.

## **7.2 Environmental Consequences**

The amount of natural vegetation or grassland, rather than agricultural land, that would be crossed by the proposed Project is consistent with the DEIS, and the impacts to vegetation remain the same.

A total of 34 special status plants were considered and evaluated in the studies supporting the 1986 DEIS. Of these, 20 were searched for and evaluated during April 2001 field surveys commissioned by PG&E (Jones & Stokes 2001). Jones & Stokes (2001) also included an additional 17 special status plants that were not considered within the context of the 1988 studies. Table 2 shows the plant species that were evaluated in both reports, and the species' current status under the ESA.

The 2001 survey positively established the presence of three additional species that were on the 1988 list: cottony buckwheat (*Eriogonum gossypinum*), Gypsum loving larkspur (*Delphinium gypsophilum* ssp. *Gypsophilum*), and Lost Hills saltbush (*Atriplex vallicola*). The survey also determined that there is at least a moderate potential for three additional species from the 1988 list to occur in the Project area, including two species currently listed as endangered or threatened under the federal ESA: San Joaquin wooly-threads (*Monolopia congdonii*) and Hoover's eriastrum (*Eriastrum hooverii*).

A number of species were considered to potentially occur within the Project area in the 1988 FEIS, based on the limited information known about the species, and the limited field evaluations that were actually performed at that time. The probability of occurrence within the Project area of most of these species was downgraded from "possible" to "low" based on the 2001 evaluations and the current understanding of the species' ranges and habitat requirements.

**Table 2. Plant Species Investigated for the FEIS and in 2001<sup>a</sup>**

Plant Species	Common Name	Current USFWS Status <sup>b</sup>	Current CDFG Status <sup>b</sup>	Report Reference <sup>c</sup>
<i>Acanthomintha lanceolata</i>	Santa Clara thormmint	- <sup>d</sup>	-	86
<i>Acanthomintha obovata</i> spp. <i>obovata</i>	San Benito thormmint	SC	-	01
<i>Amsinckia vernicosa</i> var. <i>furcata</i>	forked fiddleneck	SC	-	86, 01
<i>Amsinckia vernicosa</i> var. <i>vernica</i>	vernal fiddleneck	-	-	86
<i>Antirrhinum ovatum</i>	oval-leaved snapdragon	-	-	01
<i>Astragalus macrodon</i>	Salinas milkvetch	-	-	01
<i>Atriplex cordulata</i>	heartscale	SC	-	01
<i>Atriplex coronata</i> var. <i>coronata</i>	crownscale	-	-	01
<i>Atriplex joaquiniana</i>	San Joaquin spearscale	SC	-	01
<i>Atriplex patula</i> ssp. <i>spicata</i>	San Joaquin saltbush	SC	-	86
<i>Atriplex vallicola</i>	Lost Hills saltbush	SC	-	86, 01
<i>Campanula exigua</i>	chaparral harebell	-	-	86, 01
<i>Caulanthus californicus</i>	California jewelflower	E	E	86, 01
<i>Cirsium crassicaule</i>	slough thistle	SC	-	86
<i>Clarkia breweri</i>	Brewer's clarkia	-	-	86, 01
<i>Convolvus simulans</i>	small-flowered morning-glory	-	-	01
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>	hispid bird's-beak	SC	-	86, 01
<i>Cordylanthus palmatus</i>	palmate bird's-beak	E	E	86, 01
<i>Cryptantha rattanii</i>	Rattan's cryptantha	-	-	86
<i>Deinandra halliana</i>	Hall's tarweed	-	-	01
<i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>	gypsum loving larkspur	-	-	86, 01
<i>Delphinium recurvatum</i>	recurved larkspur	SC	-	01
<i>Eremalche kernensis</i>	kern mallow	E	-	86, 01
<i>Eriastrum hooverii</i>	Hoover's eriastrum	T	-	86, 01
<i>Erigeron pterophyllus</i>	rock daisy	-	-	86
<i>Eriogonum argillosum</i>	clay-loving buckwheat	-	-	86, 01
<i>Eriogonum gossypinum</i>	cottony buckwheat	SC	-	86, 01
<i>Eriogonum nudum</i> var. <i>indictum</i>	protruding buckwheat	-	-	01
<i>Eriogonum vestitum</i>	Idria buckwheat	-	-	86, 01
<i>Eriophyllum jepsonii</i>	Jepson's wooly sunflower	-	-	86, 01
<i>Eryngium racemosum</i>	Delta coyote-thistle	SC	E	86
<i>Eschscholzia hypocoides</i>	San Benito poppy	-	-	01
<i>Fritillaria agrestis</i>	stink bells	SC	-	86, 01
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule-pea	SC	-	86
<i>Layia heterotricha</i>	pale-yellow layia	SC	-	01
<i>Layia munzii</i>	Munz feets tidy-tips	-	-	01
<i>Lepidium jaredii</i> ssp. <i>album</i>	Panoche peppergrass	SC	-	01
<i>Lessingia (Benitoa) occidentalis</i>	benitoa	-	-	86, 01
<i>Madia radiata</i>	showy madia	-	-	01
<i>Malacothamnus aboriginum</i>	Indian Valley bush-mallow	-	-	86
<i>Malacothamnus hallii</i>	Hall's bush-mallow	-	-	01
<i>Monolopia (Eatonella) congdonii</i>	San Joaquin wooly-threads	E	-	86, 01
<i>Nemacladus gracilis</i>	slender nemacladus	-	-	86, 01
<i>Neostapfia colusana</i>	colusa grass	T	E	86
<i>Orcuttia inaequalis</i>	San Joaquin Valley orcuttia	T	E	86



**Table 2. Plant Species Investigated for the FEIS and in 2001<sup>a</sup> (cont)**

Plant Species	Common Name	Current USFWS Status <sup>b</sup>	Current CDFG Status <sup>b</sup>	Report Reference <sup>c</sup>
<i>Plagiobothrys hystriculus</i>	bearded popcornflower	-	-	86
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	-	-	86
<i>Streptanthus insignis</i> var. <i>lyonii</i>	Arbrura ranch jewelflower	SC	-	86, 01
<i>Tropidocarpum capparideum</i>	caper-fruited tropidocarpum	SC	-	86, 01
<i>Tuctoria greenii</i>	Greene's tuctoria	E	R	86
<i>Twisselmannia californica</i>	kings gold	-	-	01

a. Species not currently listed by the USFWS or the CDFG may have been under consideration for listing prior to 1988 or may be listed by the California Native Plant Society as a rare, native plant.

b. USFWS – United States Fish and Wildlife Service, CDFG – California Department of Fish and Game, E - endangered, T - threatened, PE - proposed endangered, SC – species of concern, R - rare.

c. 86 refers to the environmental documents supporting the FEIS, including Volumes 2B and 3B of the 1986 DEIS; 01 refers to Jones and Stokes, 2001.

d. A dash (-) indicates the species is not listed.

Several listing status changes occurred in the plants considered within both evaluations, as shown in Table 2.

The Jones & Stokes (2001) field survey and report included 17 plant species that were not considered in the 1986 DEIS. Of those additional species, four were observed within the Project area, and it was determined that an additional six species had at least a moderate potential for occurrence within the Project area. None of the species added to the list of species evaluated in 2001 have any formal federal or state listing status, although several are listed by the California Native Plant Society (CNPS). Status changes between 1988 and 2001 for any of these species were not determined.

The 1986 DEIS evaluated 14 plant species that were not considered in the 2001 field surveys. Seven of these are wetland or vernal pool species: slough thistle (*Cirsium crassicaule*), Delta coyote thistle (*Eryngium racemosum*), Delta tule-pea (*Lathyrus jepsonii*), Colusa grass (*Neostapfia colusana*), San Joaquin Valley orcutia (*Orcuttia inaequalis*), Sanford's arrowhead (*Sagittaria sanfordii*), and Greene's tuctoria (*Tuctoria greenii*). The Project area is outside the range of most of these species; however vernal pools may be present on a short stretch of the line, and if the line crosses them, Western would assume that listed species are present and would include them in the biological assessment. Of the remaining seven species, one, the bearded popcornflower (*Plagiobothrys hystriculus*), is now thought to be extinct, and three (forked fiddleneck [*Amsinckia vernicosa* var. *vernicosa*], rock daisy [*Erigeron peterophilus*], and San Joaquin saltbush [*Atriplex patula* ssp. *Spicata*]) are no longer of federal, state, or CNPS concern. The remaining three species were considered to have a potential for occurrence within the Project area in 1988 based on habitat requirements – although the nearest known populations of each of the three were several miles away from the Project area.

### 7.3 Follow-Up Actions, Mitigation, and Coordination

The 1986 DEIS (Volume 2B, Sections 4 and 5) and the biological assessment (Volume 3B, Section G) describe the potential effects of the proposed transmission line. Those descriptions continue to be accurate. Some of the potential impacts are considered short-term if they were related to construction, while others are long-term if they would continue to affect special status species or habitats after construction is completed.

Consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA may be required prior to initiation of construction. This may take the form of either a formal or an informal consultation, as appropriate, depending on the level of potential impacts of the Project. Informal consultation has begun, and Western will determine if formal consultation is required. In support of this consultation, a new biological assessment that includes the recent survey results will be prepared. Because the habitat in the Project corridor is relatively homogeneous, there is a good understanding of species occurrence and distribution. Mitigation measures are identified in the DEIS to reduce potential impacts to habitat during construction and operation of the transmission line for the species considered in the DEIS. Additional biological surveys may be required in areas where sensitive species have been identified to verify the presence of specific species at structure locations, access roads, and construction areas to determine any site-specific conditions that can be avoided. Specific mitigation measures will be designed to minimize the impacts; if impacts cannot be fully minimized, then the extent of the adverse effects will be well understood. Additionally, a discussion of mitigation measures and structure placement is included in Appendix A. A summary of mitigation measures proposed in the 1986 DEIS is included in Appendix E.

### 8.0 Wildlife

The 1986 DEIS (Sections 3.5 and 4.5) notes that the wildlife community in the Los Banos – Gates Transmission Project study area is characterized by low species diversity and, with few local exceptions, low relative abundance. While this is true relative to other habitats in California, this area is also important to local wildlife species because it has not received the impacts of agricultural activities that other areas have. Included in TANC's list of unavoidable adverse impacts are the permanent replacement of vegetation and wildlife habitat with structure footings and access roads, the disturbance of wildlife habitat during construction activities, and the collision of birds with Project conductors. The surveys performed in support of the 1986 DEIS positively identified four animal species of concern: the tri-colored blackbird (*Aigelaius tricolor*), Swainson's hawk (*Buteo swainsonii*), golden eagle (*Aquila chrysaetos*), and the federally endangered blunt-nosed leopard lizard (*Gambelia silus*), as shown in Table 3. Additionally, the EIS reported that the bald eagle (*Haliaeetus leucocephalus*) was known to be present occasionally at the Los Banos and Little Panoche reservoirs. Many of the potential impacts on wildlife have been mitigated by avoiding highly sensitive use areas (i.e., wetlands, riparian zones) by choosing the western route as the

preferred alternative. The wetlands on the preferred alternative route can be spanned without clearing or filling wetland vegetation and wildlife habitat.

## 8.1 New Information

As noted in Section 7.0, Vegetation, PG&E commissioned a field survey for special status plants and wildlife in April 2001. The resulting report (Jones & Stokes 2001) includes a considerable amount of updated information about the special status species in the vicinity of the proposed Project area. Appendix A contains a thorough analysis of the impacts to nature; it is summarized here.

The federal and state lists of T&E species that are potentially affected by the Project have changed considerably. Table 3 contains the current listing of the animal species of concern in the Project area evaluated in both reports. Changes in listing status include the giant kangaroo rat (*Dipodomys ingens*), changed from proposed endangered to endangered, and the California tiger salamander (*Ambystoma tigrinum californiense*), upgraded to candidate (the Santa Barbara distinct population segment is listed as endangered).

A total of eight animal species of concern were considered during both the 1988 and 2001 evaluations. Of these, four were observed in 2001 (the tri-colored blackbird [*Aigelaius tricolor*], golden eagle [*Aquila chrysaetos*], San Joaquin antelope squirrel [*Ammospermophilus nelsoni*], and blunt-nosed leopard lizard [*Gambelia silus*]). Possible signs (burrows, tracks, scat) were observed for three other species (San Joaquin kit fox [*Vulpes macrotis mutica*], giant kangaroo rat [*Dipodomys ingens*], and short-nosed kangaroo rat [*Dipodomys nitratoides brevinasus*]). The remaining species, the California tiger salamander (*Ambystoma tigrinum californiense*), was not observed, but potential habitat areas were noted along some of the water courses crossed by the proposed transmission line route.

Jones & Stokes (2001) evaluated an additional 10 species that were not considered in the DEIS. Of these, five were observed within the study area and possible signs of the American badger (*Taxidae taxus*) were observed. Of these 10 species, only one, the California red-legged frog (*Rana auarora draytonii*), is listed under the federal ESA, and it may occur in the few wetland areas or along the stream courses crossed by the proposed route.

Jones & Stokes (2001) also indicate that the Natural Diversity Data Base (NDDDB) has records for three additional species in the Project area that were not considered in either the 1988 DEIS or in the 2001 evaluations: the Tulare grasshopper mouse (*Onychomys torridus tularensis*) (federal species of concern, no state status); the California horned lizard (*Phrynosoma coronatum frontale*) (state and federal species of concern); and the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

Additionally, the DEIS and FEIS considered 13 species that were not considered within the Jones & Stokes (2001) report. Three of these, Swainson's hawk (*Buteo swainsonii*), Ciervo aegilian scarab beetle (*Aegialia concinna*), and San Joaquin dune beetle (*Coelus gracilis*), were reported within the NDDDB to occur within or near the Project area. Swainson's hawk could occur in the area, although there are few possible nesting sites. The Ciervo aegilian scarab beetle and the San Joaquin dune beetle, both sand dune restricted species, were not considered because no dunes would be impacted by the proposed transmission line. The bald eagle (*Haliaeetus leucocephalus*) was not considered within Jones & Stokes (2001). However, the DEIS indicates that the bald eagle is occasionally present in the vicinity of the Los Banos and Little Panoche reservoirs, but is more common around the San Luis reservoir north of the Project area. The level of occurrence corresponds to periods of high waterfowl use of these water bodies. The proposed transmission line should present a low risk to bald eagles occasionally visiting the Los Banos and Little Panoche reservoirs. The 1988 biological assessment indicates that Swainson's hawks were observed at two locations as identified in the wildlife maps in Volume 4B of the 1986 DEIS.

Most of the other species listed in the 1986 DEIS, except potentially the San Joaquin pocket mouse, are unlikely to occur within the Project area. The San Joaquin pocket mouse was reported in 1986 at the mouths of Moreno Canyon and Panoche Creek. The giant garter snake is limited to marshy areas located a considerable distance from the Project site. There is no suitable habitat for the white-faced ibis (*Plegadis chihi*) within the Project area, and the Project area is well outside the known range for the six remaining insect species identified in the 1986 DEIS.

According to the Recovery Plan for upland species of the San Joaquin Valley, California (1998), protection of Panoche Hill is essential to the recovery of several species. It supports one of the three core populations of San Joaquin kit fox, whose de-listing criteria include protection of at least 90 percent of the Ciervo-Panoche. Because of the rough terrain associated with Panoche Hill, it is likely that building a 500-kV line through this area would not be economically practical. As discussed in Section 9.0, Land Use and Status, the BLM continues to manage the Panoche Hills and Tumey Hills management areas as wilderness study areas (WSAs) and is precluded from any activities that would impair land suitability for wilderness designation.<sup>31</sup> The preferred corridor crosses the eastern base of the Panoche Hills and Tumey Hills and, with an average of four structures per mile, the transmission line would not present a barrier to animal species moving to and from the WSAs.

There is no suitable habitat for the giant garter snake (*Thamnophis couchi gigas*) or the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Because of scarce habitat, this beetle was not included in either the 1986 DEIS or the 2001 survey.

**Table 3. Animal Species Investigated for the FEIS and in 2001**

Animal Species	Common Name	Current USFWS Status <sup>a</sup>	Current CDFG Status <sup>a</sup>	Report Reference <sup>b</sup>
<i>Aegialia concinna</i>	ciervo aegilian scarab beetle <sup>c</sup>	-	SC	86
<i>Aigelaius tricolor</i>	tri-colored blackbird	SC	SC	86, 01
<i>Ambystoma tigrinum californiense</i>	California tiger salamander	E/C	SC	86, 01
<i>Ammospermophilus nelsoni</i>	San Joaquin antelope squirrel	SC	T	86, 01
<i>Aquila chrysaetos</i>	golden eagle	-	SC	86, 01
<i>Athene cunicularia hypugea</i>	Western burrowing owl	SC	SC	01
<i>Buteo swainsonii</i>	Swainson's hawk	-	T	86
<i>Circus cyaneus</i>	Northern harrier	-	SC	01
<i>Clemmys marmorata pallida</i>	Western pond turtle	SC	SC	01
<i>Coelus gracilis</i>	San Joaquin dune beetle	SC	SC	86
<i>Dipodomys ingens</i>	giant kangaroo rat	E	E	86, 01
<i>Dipodomys nitratoideus brevinasus</i>	short-nosed kangaroo rat	SC		86, 01
<i>Eremophila alpestris actia</i>	California horned lark	-	SC	01
<i>Gambelia silus</i>	blunt-nosed leopard lizard	E	E	86, 01
<i>Haliaeetus leucocephalus</i>	bald eagle	T	E	86
<i>Hydroporus hirsutus</i>	wooly hydroporus diving beetle	SC	SC	86
<i>Lanius ludovicianus</i>	loggerhead shrike	-	SC	01
<i>Lytta hoppingi</i>	Hopping's blister beetle	SC	SC	86
<i>Lytta molesta</i>	Molestan's blister beetle	SC	SC	86
<i>Lytta morrisoni</i>	Morrison's blister beetle	SC	SC	86
<i>Masticophis flagellum ruddocki</i>	San Joaquin whipsnake	-	SC	01
<i>Myotis yumanensis</i>	Yuma myotis	SC	-	01
<i>Oravelia pege</i>	Dry Creek Cliff strider bug	SC	SC	86
<i>Perognathus inornatus inornatus</i>	San Joaquin pocket mouse	SC	SC	86
<i>Plegadis chihi</i>	white-faced ibis	SC	SC	86
<i>Rana avarora draytonii</i>	California red-legged frog	T	SC	01
<i>Rana boylei</i>	foothill yellow-legged frog	SC	SC	01
<i>Taxidea taxus</i>	American badger	-	SC	01
<i>Thamnophis couchi gigas</i>	giant garter snake	T	T	86
<i>Trigonoscuta doyeri</i>	Doyen's trigonoscuta weevil	SC	SC	86
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	T	86, 01

- a. USFWS – United States Fish and Wildlife Service, CDFG – California Department of Fish and Game, E - endangered, T - threatened, SC – species of concern, E/C – California tiger salamander is listed as endangered in Santa Barbara County, and is a candidate for listing elsewhere in its range.
- b. 86 refers to the environmental documents supporting the FEIS, including the 1986 DEIS; 01 refers to Jones and Stokes, 2001.
- c. A dash (-) indicates the species is not listed.

The corridor crosses through California red-legged frog (*Rana aurora draytonii*) critical habitat units 15, 16, and potentially 19. However, red-legged frog habitat would be spanned by the line, access roads would avoid any red-legged frog habitat by at least 300 feet, and construction would not occur near habitat during the period of October 31 to May 1.

A 500-kV line built to NESC specifications would not need any modification to prevent large bird electrocution. The spacing between phase to phase and phase to ground exceeds the suggested practices for preventing raptor electrocution. Conductors on a 500-kV line are usually arranged in two, three, or four bundles, making them visible to all birds, but particularly to birds of prey. Collisions with the conductors are rare occurrences, especially by raptors. Bird collisions with lines, when they occur, usually involve large-bodied, slow-flying birds such as waterfowl and wading birds. Typically, collisions occur when the birds are startled or distracted or when visibility is reduced. Birds may see the conductor and flare up to fly over it and strike the overhead ground wire. If this wire is present, and where there are areas where bird collisions are likely (e.g., river crossings, waterfowl staging areas, or communication flyways), lines would be marked, using devices that have been scientifically tested and found to reduce collision potential by at least 85 percent.

## **8.2 Environmental Consequences**

Construction of the Project would be performed as envisioned in 1988; therefore, the kinds of potential effects resulting from construction, operation, and maintenance of the transmission line would be similar to those described in the 1988 FEIS. The DEIS and the biological assessment (1986 DEIS, Volume 3B, Section G) prepared in support of the 1986 DEIS discuss the potential effects of the proposed transmission line. These descriptions continue to be accurate. Some of the potential impacts are considered short-term if they are related to construction, while others are long-term if they will continue to affect special status species or habitats after construction is completed.

## **8.3 Follow-Up Actions, Mitigation, and Coordination**

Consultation with the USFWS under Section 7 of the ESA may be required prior to issuance of a Final ROD and initiation of construction. This may take the form of either a formal or an informal consultation, as appropriate, depending on the level of potential impacts of the Project. Informal consultation has begun, and Western will determine if formal consultation is required. In support of consultation, a new biological assessment that includes the recent survey results will be prepared. The consultation will provide any specific requirements for protection of federally listed species under the ESA. The California Department of Fish and Game (CDFG) will also provide any requirements for protection of state listed species through the CPUC's CEQA process. Because the habitat in the Project corridor is relatively homogeneous, there is a good understanding of species occurrence and distribution. Mitigation measures are identified in the DEIS

to reduce potential impacts to habitat during construction and operation of the transmission line for the species considered in the DEIS. Additional biological surveys may be required in areas where sensitive species have been identified to verify the presence of specific species at structure locations, access roads, and construction areas to determine any site-specific conditions that can be avoided. Specific mitigation measures will be designed to minimize the impacts; if impacts cannot be fully minimized, then the extent of the adverse effects will be well understood. Additionally, a discussion of mitigation measures and structure placement is included in Appendix A.

## **9.0 Land Use and Status**

A detailed inventory of land use was prepared in support of the 1986 DEIS for the study area between Los Banos and Coalinga along the western edge of the San Joaquin Valley. The 1986 DEIS discusses land use in Sections 3.6 and 4.6. The area includes portions of the western valley and the foothills of the Diablo Range. The vast majority of lands within the corridor are designated as grasslands or natural vegetation. Near Coalinga, the corridor crosses about four miles of lands developed with oil fields and storage facilities. Once the corridor turns east, near its southern terminus at the Gates Substation, it crosses approximately four miles of productive agricultural lands. Maps were prepared for all alternative transmission corridors to show land jurisdiction, land-use zoning and policy, existing and proposed land use, and agricultural resources (see Volume 4B of the DEIS, Los Banos – Gates Map Appendix).

Impacts were assessed in the 1986 DEIS in the following areas: compatibility with residences, canals, dams, airstrips, and proposed Projects; land temporarily disturbed; land permanently required; land required for right-of-way; loss of productive land; agricultural equipment and operation; irrigation practices; aerial applications; weed and pest control; and recreation. The document concluded that there were the following irreversible commitment of resources related to land use:

- Up to 120 acres of grassland and scrub vegetation cleared for or replaced by transmission line rights-of-way, structure bases, access roads, and substations would be irreversibly lost. This vegetation, while not critical or sensitive, supports many animal communities, and both the vegetation and the habitat it provides may only be partially restored in the Project area through revegetation or reclamation if the structure sites, access roads, rights-of-way, and substation sites are abandoned.
- Activities on up to 31 acres of agricultural land and over 11 miles of irrigated cropland would be restricted or eliminated as the result of right-of-way construction Project placement; the value of these lands would be irreversibly lost during the life of the Project. This would also result in the loss of revenue from these lands.

## 9.1 New Information

New information includes updated inventory maps and aerial imagery completed by the CDWR (as noted in Section 7.0, Vegetation). Other updated information includes recently revised land use plans for Merced<sup>32</sup> and Fresno<sup>33</sup> counties. The photos (Figures 3 through 13) accompanying this section were taken in July 2001.



**Figure 3. Looking south, along the proposed corridor from Los Banos Substation**

The Merced County Year 2000 Plan lists the key concerns in placing transmission lines: aesthetics, the possible removal of land from certain land use activities, and the safety of surrounding residents. The Merced County General Plan explicitly acknowledges “Path 15” activities and the need for interagency coordination in building the Project. The plan also lists the following county policies for new transmission lines:

1. Electrical, gas, crude oil, and communication transmission and distribution lines should parallel major roads or rail systems.
2. New transmission and distribution lines shall be encouraged within existing utility easements and rights-of-way.
3. Electrical interference to adjacent land uses shall be considered in the placement of electrical and other transmission facilities.

Fresno County lists the following policies in its Public Review Draft General Plan Policy Document, which was released January 29, 2000:

1. Proposed high-voltage overhead transmission lines and structures shall be routed to minimize detrimental effects on scenic amenities visible from the right-of-way (Section 5, pg. 35).
2. The county shall work with local gas and electric utility companies to design and locate appropriate expansion of gas and electric systems, while minimizing impacts to agriculture and minimizing noise, electromagnetic, visual, and other impacts on existing and future residents (Section 4, pg. 21).

The 1986 DEIS listed several proposed developments for the overall study area that may be affected by the transmission line. A status report on these proposed projects is included here.



### **Apricot Hill Project**

- This project was to be located southeast of the Los Banos Substation but was not built. It would be outside the corridor for the preferred alternative, currently the only route under consideration.

### **Los Banos Grandes Reservoir**

- The CDWR has studied potential SWP offstream storage sites south of the Delta, including a December 1990 Los Banos Grandes Facilities Feasibility Report, which recommended construction of a 1.7-million acre-foot reservoir and associated facilities on Los Banos Creek in western Merced County. The Department has placed this project on hold pending a CALFED decision on Delta improvements. The project could then be reevaluated in consideration of those improvements and of the needs and financial capabilities of SWP contractors.<sup>34</sup> The preferred alternative route passes to the east of the proposed reservoir and should not conflict with its facilities.

### **Panoche Pass Wind Farm Project**

- The Panoche Pass wind farm is under development near the Los Banos Substation. The wind farm is outside the preferred alternative transmission route, which is the only route currently under consideration.



**Figure 4. Wind farm development near Los Banos Substation. The wind farm is north of the proposed corridor.**

### **San Joaquin Valley Water Conveyance Project**

- The 1986 DEIS states that the portion of the Delta-Mendota Canal proposed for enlargement in association with the San Joaquin Valley Water Conveyance Project is not crossed by any route alternative.

### **Martin Ranch State Vehicular Recreation Area Project**

- This project was abandoned by the California Off-Highway Motor Vehicle Recreation Division. The Division reports that public concerns about asbestos in the soil caused the project to be abandoned. Potential environmental affects were not assessed.<sup>35</sup>

### **Coalinga Air Cargo Facility**

- This project has not been developed and is not being pursued by the City of Coalinga. The City has developed a new airport located three miles northeast of

town and about five miles west of the proposed corridor. The proposed transmission line is far enough from the new airport that there should be no interference in flight paths or operations.<sup>36</sup>

### **Los Gatos Reservoir and Guijaral Park**

- This facility has not been developed but is still included in the Coalinga Regional Plan.<sup>37</sup> The facility would be located at the confluence of the Los Gatos and Jacalitos Creeks, mostly south of Phelps Avenue, west of El Dorado Avenue, in an area spanning three to 10 miles east of Coalinga. Portions of this facility could be near the Project corridor.

### **Polvadero Country Club**

- This project's name has been changed to the Lonesome Dove Golf Course, which has been developed at 41605 Sutter Road, Coalinga, CA. This is an 80-acre, nine-hole golf course. The golf course is approximately one mile south of the preferred alternative corridor and would not be impacted by the new transmission line.

### **San Joaquin Pipeline Project**

- The proposed San Joaquin Pipeline crosses the preferred route but there is no possibility of conflict, according to the 1986 DEIS.

Review of the current land use plans did not indicate any new development, businesses, or residences in the affected area. A visual inspection of the corridor found a helicopter-based aerial applications business located on Phelps Road near Coalinga. This business had several utility lines in its immediate proximity. The business is located about a mile and a half from the proposed route, which is far enough removed from the transmission line that there would be no interference to its operations. County land and planning agencies will be conferred with during siting activities.

Recreational demands have probably changed since preparation of the 1988 Report. California's and Coalinga's population has increased and new pursuits, such as mountain bike riding, have become popular.

The BLM continues to manage the Panoche Hills and Tumey Hills management areas as WSAs.<sup>38</sup> Until Congress determines if the Panoche Hills North and South WSAs should be designated wilderness areas, those WSAs must be managed by BLM in a manner that protects their suitability for wilderness. That mandate precludes any activities that would impair land suitability for wilderness designation. Consequently, these WSAs could not be traversed by the proposed new transmission line. The preferred corridor crosses the eastern base of the Panoche Hills and Tumey Hills. Western will consult with BLM to ensure that the proposed new transmission line would not traverse these WSAs.

## **9.2 Environmental Consequences**

As stated in Section 7.0, Vegetation (see Figures 1 and 2), updated information from the CDWR and Merced and Fresno counties appears consistent with land use information presented in the 1986 DEIS.

Some outdated data from the 1986 DEIS is a calculation of the economic impacts of lost productive lands. This information is not current because of potential changes in crops, the effects of inflation, and changes in land values and labor rates. The 1986 value for economic impacts to lost productive lands is \$161 per acre per year. Taking only inflation into account, this value amounts to \$307 per acre per year in 2001.

## **9.3 Follow-Up Actions, Mitigation, and Coordination**

Western will coordinate with Merced and Fresno counties as well as landowners (including federal agencies) in the proposed corridor. The 1986 DEIS outlines a series of mitigation measures for specific conditions. Western will confirm the status of these conditions and apply mitigation as needed. Examples of specific conditions include the location of residences in the right-of-way, the location of structures relative to crops and irrigation practices, and the location of structures and lines relative to new businesses, developments and recreation areas. A mitigation measure will be added that Western will consult with BLM and the proposed transmission line route will be prohibited from traversing the North and South Panoche Hills and the Tumey Hills WSAs. Losses of productive lands and changes in quality of life or aesthetic impacts will be addressed in the easement negotiation process. Impacts can be greatly reduced by working with landowners and adjusting individual structure locations as necessary.



**Figures 5, 6, and 7 show Little Panoche Reservoir, with views from the dam, looking along the proposed corridor south and then north.**





**Figure 8 (top) shows the view across Panoche Creek looking east toward PG&E's existing transmission lines. Figure 9 is in the same vicinity looking north from the Tumey Hills recreation area.**



**Figure 10. Looking north from Manning Road, south of Interstate 5, and east of PG&E's existing transmission line.**



**Figures 11 and 12 are taken from Highway 33 near Interstate 5, looking north and south, respectively.**





**Figure 13 is taken near the Gates Substation looking northwest. PG&E's transmission lines are in the foreground.**

## **10.0 Visual Resources**

The BLM's Visual Resource Management System was used to evaluate the visual resources surrounding the Los Banos - Gates study area. This approach was used for BLM lands in the study area using data from BLM reports. New data and inventories were developed for non-BLM lands. Visual resources are discussed in Section 3.7 and 4.7 of the DEIS.

The new transmission line would be located approximately two miles west of Interstate 5 and would be visible for most of the length of the line. Two other existing PG&E transmission lines are located between the new transmission line and the interstate highway. From the other key observation points noted in the 1986 DEIS, the view varied from highly visible (where the line crosses Interstate 5) to partially visible (where the line is partially hidden due to the terrain).

Visual impacts were assessed for effects on scenic quality, views from scenic highways, and effects on existing or proposed recreation areas. Visual impacts of the proposed western route include landform and vegetation contrast impacts during construction for clearing and grading activities. These short-term impacts would be limited both in duration and in area and would be relatively limited because the Project area is primarily within grasslands and cultivated crops. Addition of a transmission line to the area where other lines dominate the natural landscape is a long-term impact, but represents a minor change in the visual setting. All of the areas studied showed a classification of common or minimal scenic quality (Class C), and implementing the Project would not change this classification.

The 1986 DEIS notes that the CPUC has passed an order that restricts overhead transmission lines near scenic highways. The order states that overhead transmission

lines should not be installed within 1,000 feet of the highway right-of-way or in areas that are visible from scenic highways. The CPUC allows some flexibility and recommends that transmission line proponents review with and seek expression of approval from local governments prior to submitting a proposal to the CPUC.

The 1986 DEIS identified the following scenic highways:

- Interstate 5, a county-designated scenic highway within Fresno County, and a state-designated scenic highway north of the study area.
- State Highway 33, a county-designated scenic highway from Interstate 5 west to the Fresno County boundary
- State Highway 152, a state-designated scenic highway west from Interstate 5.

## **10.1 New Information**

Based on visual inspection of the study area, comparisons of recent aerial images with those included in the 1986 DEIS, and review of CDWR land use inventory maps, the grassland and agricultural qualities of the study area have not measurably changed since 1986, and the visual analysis from the key observation points remains the same (see Section 7.0, Vegetation, and Section 9.0, Land Use and Status, in this Supplement Analysis for more information).

Scenic highway designations also have not changed. Fresno County's land use plan lists Interstate 5 and Highway 33 as scenic highways, but they are not designated as state scenic highways.<sup>39</sup> The proposed route is greater than 1,000 feet from these scenic highways (west) except where it crosses Interstate 5 and at the Los Banos Substation. The significance of Interstate 5 as a scenic highway is to the east and the view of the San Joaquin Valley, and State Highway 152 is through the Los Banos Reservoir area. Additionally, while the lines would be visible from Interstate 5, two additional 500-kV transmission lines are located between the Project and the interstate highway along most of the corridor. The addition of the Project would not, therefore, significantly increase the visual impact to the scenic highway.

## **10.2 Environmental Consequences**

Although recreational use and traffic levels may have changed due to increasing population pressures and recreation trends, the 1986 evaluation of the visual impacts has not changed.

## **10.3 Follow-Up Actions, Mitigation, and Coordination**

The 1986 DEIS lists mitigation measures that should be included in selecting structure and access road locations. Mitigation could also affect construction practices and materials selection.



## 11.0 Socioeconomics and Environmental Justice

The 1986 DEIS (Volume 2B, Sections 3.8 and 4.8) contains a detailed description of economic activities within Merced and Fresno counties as of 1980. The description of the affected environment states that economic impacts would likely be local to the Project as indicated by the following language (Volume 2B, pg. 3.8-1):

“The Project area is isolated from the larger population centers of Merced and Fresno by large tracts of Central Valley farmland and a limited east – west highway network; therefore, effects of the Project on these cities is likely to be minimal.”

The description of the local impact area was based on 1980 Census data and a University of California study completed in 1983 of the San Joaquin Basin economy, as it existed in 1976.

The 1986 DEIS indicates that the economy of the Project area is basically agricultural. The report notes that Fresno County was the nation’s number one farm county, with a gross crop value of more than \$1.9 billion. Project area cities Firebaugh, Mendota, Coalinga, Huron, Los Banos, and Dos Palos in both Fresno and Merced Counties had an agricultural economic base. Oil company operations also provided significant employment in the Coalinga area.

The construction work force for the proposed transmission line would peak at about 280 persons. PG&E assumed that half these workers would come from the local area (within 100 miles) and half would come from outside the Project area. Construction activities would proceed year-round over a 12- to 15-month period. Approximately 230 to 280 persons would be needed for the total construction and upgrade crews.

The cost of the Project was estimated at \$147 million in 1991 dollars. Western now estimates costs at between \$200 million and \$300 million.<sup>40</sup> This estimate does not include upgrades to the Gates – Arco – Midway transmission line or realignment of the Los Banos Midway No. 2 into Gates Substation but does include the substation modifications.

The regional impacts identified in the 1986 DEIS were developed using the University of California’s Cooperative Extension Service input-output assessment model. On a regional level, the Project was found to produce 96 person-years in direct employment in related economic sectors, and 171 person-years in indirect and induced employment. Direct expenditures of \$4.4 million (about 3 percent of the overall budget; this figure escalates to \$8.4 million in 2001 dollars) were thought to generate an increase in total output of \$9.8 million (\$18.7 million in 2001 dollars) in the San Joaquin Basin economy, representing an increase of far less than 0.1 percent.

The 1986 DEIS found the following local economic impacts within the Project area:

- Most of the \$2.4 million (\$4.7 million in 2001 dollars) paid to construction crews for per diem expenses would be spent in Los Banos, Dos Palos, Firebaugh, Mendota, Coalinga, and Huron.
- Materials such as concrete, oil, fuel, and hardware would be purchased as close to the work site as possible.
- Expenditures would be made in the communities closest to the substations (Los Banos and Coalinga).
- Agricultural lands adjacent to the transmission lines would be expected to suffer some economic losses as described in Section 9.2 of this Supplement Analysis.
- No permanent population increase would be expected.
- No increased demand for permanent housing was expected.
- Quality-of-life issues were expected to be addressed in the easement negotiation process. The 1986 analysis pointed out that most property owners in the area were familiar with transmission lines – how they look and how they affect land use.

The 1986 DEIS does not include an assessment of environmental justice, including income and race characteristics, because this requirement postdates issuance of the DEIS and the FEIS.

### **11.1 New Information**

Agriculture still makes up the largest portion of Fresno County's economy, and agriculture still dominates the local economy around the Project area. However, given a sense of the factors being considered, much has changed since the mid-1980s. Three significant changes include the 1990 and 2000 Censuses and issuance of Executive Order 12898 (59 Federal Register [FR] 7629) in 1994 concerning federal agencies' assessment of impacts related to environmental justice. Environmental justice refers to a federal policy in which federal actions should not result in disproportionately high adverse impacts on minority or low-income populations.

Input-output models are driven by economic data for investments and the regional economy. These data have changed since the 1986 DEIS was prepared. Thus, the modeling outcomes would most likely be different. However, the fundamental socioeconomic points raised in the 1986 analysis are valid. The Project area continues to be isolated from the eastern, more populated regions of Merced and Fresno counties, and the local economy continues to be agriculturally based. The economic impacts to the region and the local area are likely to be similar to those identified in 1986.

Executive Order 12898 directs federal executive agencies to consider environmental justice as part of their NEPA analysis (59 CFR 7629).<sup>41</sup> The Council on Environmental

Quality (CEQ) has provided guidance for addressing environmental justice.<sup>42</sup> DOE guidance is found in *Draft Guidance on Incorporating Environmental Justice Considerations into the Department of Energy's National Environmental Policy Act Process*.<sup>43</sup>

## 11.2 Environmental Consequences

Because the western San Joaquin Valley is largely rural and sparsely populated, the presence of minority and low-income populations within or near the Project corridor is low. The majority of the population in the Project area is located in the town of Coalinga, approximately 12 miles from the proposed transmission line, or on the east side of Interstate 5, which parallels the transmission line approximately two to five miles away. Within a 2,000-foot-wide corridor centered on the proposed power line, there are no populated areas. Within the western San Joaquin Valley, primarily in communities such as Los Banos and Coalinga, there are high percentages of Hispanic and multiple-race persons, and there is also a smaller black and American Indian population. The minority populations found in groups (called block groups by the Census) around the corridor exceed the criteria for a minority population in that they exceed the corresponding percentage of minorities in the entire state of California by 20 percentage points, or the percentage of minorities is greater than 50 percent. In sparsely populated areas, the geographic area making up these block groups is large. A map showing the block groups is in Appendix B. The area did not meet the criteria (exceeds the corresponding percentage of low-income population in the entire state of California by 20 percentage points) to be designated as low-income; however, significant numbers of low-income individuals are present.

An evaluation, presented in Appendix B, was conducted to determine whether any of the environmental impacts of the proposed action could significantly affect the minority and low-income populations in the western San Joaquin Valley, and if so, whether the impact would occur in a disproportionate manner. A few potential environmental impacts could affect human populations; all of these were considered small for the general population. These include:

- Electric shock and electromagnetic fields (discussed in Section 12.0)
- Aesthetic and quality of life impacts (discussed in Section 10.0 and in this section)
- Cultural resource impacts (discussed in Section 13.0)

The pathways through which the environmental impacts associated with the Project can affect human populations are discussed in each associated section of the 1986 DEIS, and are further discussed in this Supplement Analysis. For the most part, these impacts are of relatively short-term. No unusual resource dependencies or practices, such as

subsistence agriculture, hunting, or fishing, that would disproportionately affect minority or low-income populations could be found. In addition, the evaluation did not identify any location-dependent disproportionate impacts affecting these populations.

### **11.3 Follow-Up Actions, Mitigation, and Coordination**

The impacts from Los Banos - Gates Transmission Project to minority and low-income populations would be small and no special mitigation actions are warranted.

## **12.0 Corona, Field, and Safety Considerations**

The 1986 DEIS includes a detailed description of corona, field, and safety considerations (Sections 3.9 and 4.9).

### **12.1 New Information**

This section describes Western's policies on electrical effects and safety issues. Western designs, constructs, operates, and maintains transmission lines to meet or exceed the requirements of the NESC, U.S. Department of Labor occupational safety and health standards, and Western's own policies for maximum safety and protection of its employees, landowners, their property, and the public. All permanent improvements in proximity to the line, such as fences, metal gates, and metallic structures, would be grounded in accordance with existing codes.

Western would require construction contractors to prepare and conduct a safety program (subject to Western's approval) in compliance with all applicable federal, state and local safety standards and requirements, and Western's general practices and policies prior to the commencement of construction. The safety program would include (1) procedures for accident prevention, (2) use of protective equipment, (3) medical care of injured employees, (4) safety education, (5) fire protection, and (6) general health and safety of employees and the public. Western would also establish provisions for taking appropriate actions in the event the contractor failed to comply with the approved safety program.

Based upon a review of the literature and discussions with investigators active in this research area, it can be concluded that magnetic field exposure due to a 500-kV transmission line is of the same order of magnitude as normal ambient levels found in everyday life. Thus, they do not cause any significantly greater risk to biological organisms than the environment without a 500-kV transmission line. This would suggest that if any hazards do exist, they are certainly small compared to other environmental factors. Finally, no one has proven any physical mechanisms by which magnetic fields could cause harm to biological organisms. An analysis of the Electrical and Magnetic Fields is included in Appendix C.

## **12.2 Environmental Consequences**

No new environmental issues were identified. While various studies continue to debate whether any biological effects can be attributed to electric or magnetic fields, none have produced conclusive evidence one way or the other. Most research indicates that if there is any connection at all, the effect is very small, and then may affect only certain individuals. In this relatively remote area, few people would be exposed to the fields from the transmission line, further reducing any potential impacts. Such exposures are not considered significant, because routine exposures to fields in the home will be longer term, and may be considerably stronger.

## **12.3 Follow-Up Actions, Mitigation, and Coordination**

Western's list of generic mitigation measures for electrical effects pertaining to transmission lines is as follows:

1. Western would respond to individual complaints of radio or television interference generated by the transmission line by investigating the complaints and implementing appropriate mitigation measures (e.g., adjusting or using filtering devices on antennae). The transmission line would be patrolled regularly so that damaged insulators or other transmission line materials, which could cause interference, would be repaired or replaced.
2. Western would apply mitigation needed to eliminate problems of induced currents and voltages onto conductive objects sharing a right-of-way to the mutual satisfaction of the parties involved.
3. Transmission line materials would be designed and tested to minimize corona. Tension would be maintained on all insulator assemblies to ensure positive contact between insulators, thereby avoiding sparking. Caution would be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.
4. Western would continue to monitor studies performed to determine the effects of audible and electrostatic and electric magnetic fields to ascertain whether these effects are significant.

In addition, final centerline routing would avoid residences and other occupied structures, thus avoiding any impact at all.

## **13.0 Cultural and Paleontological Resources**

Cultural resources baseline data for the 1986 DEIS (Volume 3B, Appendix K) includes an abridged version of the earlier cultural resources project report (Chavez et al, 1986.)<sup>44</sup> Volume 2B of the 1986 DEIS includes cultural resource information in Sections 3.10 and 4.10.

The baseline data analysis included known and potential archaeological, historical, and Native American resources, along with an analysis of paleontological resources. Adequate cultural histories for the prehistoric, historic, and ethnohistoric periods are included in the report. A helicopter fly-over of the corridor alternatives was performed, followed by ground inventory of selected areas within the corridors that were suspected of having a higher potential for cultural properties. For the proposed western route, the field effort included the following locations, acreage, and results:

1. Los Banos Creek – 200 acres – two archaeological sites and one isolated artifact
2. Ortigalita Creek – 250 acres – two archaeological sites
3. Little Panoche Creek – 550 acres – seven archaeological sites
4. Panoche Creek – 350 acres – three archaeological sites and two isolated artifacts
5. Cantua Creek – 200 acres – one archaeological site and one historical site
6. Los Gatos Creek – 500 acres – two archaeological sites and three isolated artifacts

Several Native American tribal organizations and individuals were consulted (Chavez et al. 1986: pp. 20-21). Native American contacts reported no known but undocumented villages, cemeteries, hunting and plant gathering locations, sacred or ceremonial places, or other culturally important geographic features within the proposed corridors. Tribal representatives did, however, feel that there was some potential for discovery of such resources that were not known to contemporary tribal members, especially some archaeological sites, cemeteries, and sacred and religious sites. Chavez and others (1986: pp. 14, 21) noted that the potential for such resources was greater along the western route, because of the presence of relatively more undisturbed ground and environmental factors such as terraced areas adjacent to drainages, spring locations, potential rockshelter locations, and lithic materials sources.

Additionally, the Hollister Resource Management Plan designated 18,000 acres of the Panoche Hills – Moreno Formation as a paleontological Area of Critical Environmental Concern (ACEC). Approximately three square miles of this area lie within the western Los Banos – Gates Transmission Project. Of that, approximately 1,275 acres of the west alternative routes west-5 (363 acres), west-6 (363 acres), and west-7 (548 acres) fall within the designated area. The ACEC designation does not include a determination of what special management these paleontological resources required.

### **13.1 New Information**

The full review of the current cultural and historical resources for the Supplement Analysis is located in Appendix D. Some 17 cultural resources investigations have occurred within the two-mile-wide study area since the initial baseline cultural resources study was completed. While these projects – all field surveys – have increased the known site list and the total amount of acreage covered within the study corridor, they essentially only add to the known cultural resources picture and do not raise additional issues beyond those included in the 1988 FEIS analysis.

About 7 percent (6.25 miles) of the designated centerline within the 2,000-foot-wide study area has received some level of cultural resources inventory. A total of 37 archaeological and historical sites have been recorded within the larger two-mile-wide study area (Table D-1 of Appendix D) for the preferred route. Only 10 of these sites fall within the narrower 2,000-foot-wide corridor, and three of the 10 have already been inundated, excavated, or destroyed by the construction of the dam and reservoir in Little Panoche Creek. None of the recorded sites in the corridor has been evaluated for potential eligibility to the National Register of Historic Places.

The general area of Los Banos Creek crossed by the corridor is listed as both a California Point of Interest (California Office of Historic Preservation [COHP] 1992) and a California Historical Landmark (No. 550) for its historical importance during the Spanish period (COHP 1996). Similarly, the general area of Cantua Creek crossed by the corridor is listed as a California Historical Landmark (No. 344) for its association with the notorious bandit Joaquin Murietta.

Several historic resources are transected by the proposed Project. Historic trails and wagon roads located in each of the major drainages crossed by the corridor (Los Banos, Little Panoche, Panoche, Cantua, and Los Gatos), and a wagon road running along the base of the foothills from Panoche to Cantua may be indiscernible or destroyed by later road construction. The Goshen Division of the Southern Pacific Railroad running east-west just north of the Gates Substation has been recorded (P-10-003199). Field verification will be necessary to determine if traces of these historic linear features remain within the transmission corridor.

Northern and Southern Valley Yokuts peoples have been known to occupy the area that includes the proposed Project. It is also broadly accepted that the area was essentially depopulated of Indian people in the early 1800s due to “disease, missionization, and the sudden overrunning of their country by American miners and settlers” (Wallace 1978:462). Yokuts who survived the severe epidemics and contacts are believed to have moved south toward the southern valley sector or eastward where they joined Foothills Yokuts groups.

Native Americans are, however, present today within the general Central Valley area. In addition to the federally recognized tribes discussed below, the following seven Yokuts groups in the region have filed letters of Intent to Petition for such recognition with the Bureau of Indian Affairs:

1. Choinumni Council, Fresno, CA (1988)
2. Chukchansi Yokotch Tribe of Coarsegold, Raymond, CA (1985)
3. Kern Valley Indian Community, Weldon, CA (1979)
4. Chukchansi Yokotch Tribe of Mariposa, Mariposa, CA (1993)
5. Wukchumni Council, Visalia, CA (1988)
6. Traditional Choinuymni Tribe, Sanger, CA (2000)

## 7. Sierra Foothills Wuksachi Yokuts Tribe, Sanger, CA (1999)

The closest federally recognized Native American community to the Los Banos - Gates Project is the Santa Rosa Rancheria, located about 20 miles east of the Gates Substation between the towns of Lemoore and Stratford. This rancheria includes about 170 acres and is occupied by about 200 individuals comprising 30 families, who formerly occupied the region around old Tulare Lake. Recent "Notices of Inventory Completion" required under provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) issued by the National Park Service have identified the Santa Rosa Indian Community as having under NAGPRA "a relationship of shared group identity" for human remains from both the Southern Valley and Northern Valley Yokuts areas, including Merced and Fresno counties. Consequently, this group would probably be the primary NAGPRA point of contact for the current Project. Other federally recognized nearby Native American communities with Yokuts representation include five rancherias near the town of Fresno (North Fork, Picayune, Big Sandy, Table Mountain, and Cold Springs), and the Tule River Reservation just east of Porterville. Fresno is located about 50 miles east of the corridor and Porterville lies some 75 miles to the southeast.

Reviews of recent cultural resources projects in the Project area, as well as contacts with the California Native American Heritage Commission, do not reveal the presence of any known traditional cultural properties, areas, or resources within the corridor study area. There is, however, direct archaeological evidence (e.g., site P-10-000129) within the 2,000-foot-wide corridor for proto-historic Native American presence, as well as other nearby known proto-historic villages, such as in Los Banos Creek, just south of the Los Banos Substation, and Los Gatos Creek, west of the Gates Substation.

## 13.2 Environmental Consequences

The 1986 DEIS adequately discussed the range of potential direct and indirect impacts that could occur to archaeological, historic, and Native American resources that might be located within the final corridor right-of-way and concluded that the Project could have an undetermined effect on cultural resources. The DEIS also discussed the need for additional field studies, including Native American consultation, and offered possible treatment options for mitigating adverse effects at cultural sites where potential direct or indirect impacts could occur.

In selecting the western corridor as the preferred alternative, the occurrence of previously undisturbed ground is more prevalent, although the potential for the presence of cultural resources is greatly reduced by the more rugged terrain in many areas along the corridor. The full range of potential impacts cannot be evaluated until more intensive field inventories are completed during route selection and locations for structures are identified. The field inventories will locate all archaeological, historical, and ethnographic resources within the right-of-way, transmission line centerline, tower locations, and other ground-disturbing features such as access roads and lay-down



areas. These resources would be avoided to the maximum amount possible. Zones with the highest potential occurrence for cultural resources, primarily the drainages intersected by the corridor, would be spanned by tower construction and line-stringing activities. In addition, tower locations and access roads and other ground-disturbing activities would be located to avoid cultural resources. Avoidance of impacts to cultural resources would be Western's preferred mitigation; however, if avoidance were not possible, other treatment actions could be necessary, including data recovery.

### **13.3 Follow-Up Actions, Mitigation, and Coordination**

Western is developing a Programmatic Agreement (PA) with the appropriate state and federal agencies and Indian tribes, as well as any other parties that would participate in the Project. The PA will set forth guidelines for proper identification and evaluation of all cultural resources that could be adversely affected by construction and operation of the proposed transmission line. The PA will contain mitigation measures designed to eliminate or reduce, to the fullest extent possible, any adverse effects to cultural resources that are determined to be significant. The PA will also incorporate measures for disposition of inadvertent discoveries of previously undetected cultural resources during construction activities, including the potential for inadvertent uncovering of human remains and subsequent consultation requirements. The PA will also include curation guidelines for cultural materials and Project records that may result from cultural resources mitigative actions. The PA will be completed prior to any ground disturbing activities. The implementation of the PA would reduce impacts to cultural resources to less than significant levels.

Western will coordinate with the BLM regarding management of the paleontological ACEC.

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<sup>1</sup> Reliable, Affordable, and Environmentally Sound Energy for America's Future: Report of the National Energy Policy Development Group, U.S. Government Printing Office, May 17, 2001. Accessible at [http://www.energy.gov/HQPress/releases01/maypr/energy\\_policy.htm](http://www.energy.gov/HQPress/releases01/maypr/energy_policy.htm)

<sup>2</sup> Pacific Gas and Electric Company (PG&E). 1986. *Draft EIS/EIR, Volume 2B: Los Banos - Gates Supporting Environmental Report for the California - Oregon Transmission Project and the Los Banos - Gates Transmission Project*, DOE/EIS-0128, November 1986.

<sup>3</sup> Transmission Agency of Northern California and Western Area Power Administration (TANC and Western). 1988. *Final Environmental Impact Statement, Environmental Impact Report for the California - Oregon Transmission Project and the Los Banos-Gates Transmission Project*, DOE/EIS-0128, January 1988.

<sup>4</sup> TANC and Western. 1988.

<sup>5</sup> Transmission Agency of Northern California (TANC). 1994. *California Transmission Project Final Completion Report*. February 1994. Sacramento, CA.

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- <sup>6</sup> Western Area Power Administration (Western). 1988. *Record of Decision for California - Oregon Transmission Project*. FR 53 96, pp. 17749 –17755, May 18, 1988.
- <sup>7</sup> Pacific Gas and Electric (PG&E). 2001. [PG&E Comments on Federal Plan to Expand Path 15.](http://www.pge.com/006_news/006a_news_rel/010529.shtml) [http://www.pge.com/006\\_news/006a\\_news\\_rel/010529.shtml](http://www.pge.com/006_news/006a_news_rel/010529.shtml)
- <sup>8</sup> Western Area Power Administration (Western). 2001. 66 FR 114, pp 31909 – 31910, June 13, 2001.
- <sup>9</sup> Western 1988
- <sup>10</sup> Transmission Agency of Northern California (TANC). January 20, 1988. *Certification of the Final Environmental Impact Report for the California - Oregon Transmission Project, the Los Banos - Gates Transmission Project, and the Pacific Northwest Reinforcement project, and Findings Pursuant to the California Environmental Quality Act*. Sacramento, CA.
- <sup>11</sup> CPUC, General Order No. 131-D, Section III.A.
- <sup>12</sup> Guidelines for Implementation of the California Environmental Quality Act, Section 15063(b)(1).
- <sup>13</sup> CEQA, Section 21083.7.
- <sup>14</sup> California Code of Regulations, Chapter 3, Section 15222
- <sup>15</sup> Guidelines for Implementation of the California Environmental Quality Act, Section 15221(b).
- <sup>16</sup> Guidelines for Implementation of the California Environmental Quality Act, Section 15382.
- <sup>17</sup> Guidelines for Implementation of the California Environmental Quality Act, Appendix G, Section XVII.
- <sup>18</sup> <http://www.cpuc.ca.gov/static/industry/environment/infocrit.htm>.
- <sup>19</sup> Pacific Gas & Electric Company (PG&E). 2001. Conditional Application for Certificate of Public Convenience and Necessity: Los Banos – Gates 500-kV Transmission Project, April 2001. Submitted to the California Public Utilities Commission.
- <sup>20</sup> PG&E 1986.
- <sup>21</sup> [www.ca.arb.gov](http://www.ca.arb.gov)
- <sup>22</sup> <http://www.arb.ca.gov/aqd/pm10/a2s2241.htm>
- <sup>23</sup> Wooley, David R. 1995. *The Clean Air Act Handbook, A Guide to Compliance*. Clark, Boardman, Callaghan, New York. P. xi.
- <sup>24</sup> <http://www.valleyair.org/rules/currentrules/r8020.pdf>
- <sup>25</sup> [http://www.valleyair.org/busind/comply/fugitive\\_dust\\_buln.htm](http://www.valleyair.org/busind/comply/fugitive_dust_buln.htm)
- <sup>26</sup> PG&E, 1986. p. 3.2-14.
- <sup>27</sup> California Department of Water Resources (CDWR). 1998. *Bulletin 160-98: California Water Plan, Chapter 8. Options for Meeting Future Water Needs in Interior Regions of California*, San Joaquin River Hydrologic Region. Available at <http://rubicon.water.ca.gov/b16098/v2txt/ch8sj.html>
- <sup>28</sup> [http://www.waterplan.water.ca.gov/landwateruse/landuse/counties/fr\\_year.htm](http://www.waterplan.water.ca.gov/landwateruse/landuse/counties/fr_year.htm) and [http://www.waterplan.water.ca.gov/landwateruse/landuse/counties/me\\_year.htm](http://www.waterplan.water.ca.gov/landwateruse/landuse/counties/me_year.htm)
- <sup>29</sup> Pacific Gas and Electric (PG&E). 1986a. Volume 4B: Los Banos – Gates Map Appendix for the California – Oregon Transmission Project and Los Banos – Gates Transmission Project, DOE/EIS – 0128. November 1986.
- <sup>30</sup> Jones and Stokes (2001) Results of the special status plant and wildlife surveys conducted along the proposed Path 15 transmission line project in Fresno and Merced Counties. June, 2001. Sacramento CA. Prepared for Pacific Gas and Electric Company, San Francisco, CA.
- <sup>31</sup> [http://www.ca.blm.gov/hollister/panoche\\_tumeys.html](http://www.ca.blm.gov/hollister/panoche_tumeys.html)
- <sup>32</sup> <http://www.co.merced.ca.us/planning/plansregs/generalplan/generalplan.html>
- <sup>33</sup> <http://www.fresno.ca.gov/4360/special.htm>
- <sup>34</sup> CDWR 1998.
- <sup>35</sup> Personal communication with Michael Brown, California State Parks, Off-Highway Motor Vehicle Recreation Division, California State Parks, 25 July 2001, The Divisions home page does not reference the Martin Ranch Project but is available at <http://www.ohv.parks.ca.gov/html/ohvhome.htm>
- <sup>36</sup> Personal communication with Tammy Rudock, Director of Public Works, City of Coalinga, phone: 559-935-1533
- <sup>37</sup> Fresno County Planning Commission, Coalinga Regional Plan, Resolution No. 6495, August 29, 1974, as amended on 8/18/80, 09/24/85, 09/30/91, and 09/17/96.
- <sup>38</sup> [http://www.ca.blm.gov/hollister/panoche\\_tumeys.html](http://www.ca.blm.gov/hollister/panoche_tumeys.html)
- <sup>39</sup> [http://www.dot.ca.gov/hq/LandArch/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm)

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<sup>40</sup> Western 2001.

<sup>41</sup> Executive Office of the President. 1994. "Federal Actions To Address Environmental Justice In Minority Populations and Low-income Populations." Executive Order 12898. (February 11, 1994).

<sup>42</sup> U.S. Council on Environmental Quality (CEQ). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. Council on Environmental Quality, Executive Office of the President, Washington, D.C.

<sup>43</sup> U.S. Department of Energy (DOE). 2000. *Draft Guidance on Incorporating Environmental Justice Considerations into the Department of Energy's National Environmental Policy Act Process*, U.S. Department of Energy Environment, Safety and Health, Office of NEPA Policy and Assistance, April, 2000.

<sup>44</sup> Chavez, David, Laurence H. Shoup, and Arthur E. Staebler. 1986. *Cultural and Paleontological Resources Evaluation for the Los Banos-Gates Transmission Project, Merced and Fresno Counties, California*. David Chavez and Associates, Mill Valley, CA.

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## **Appendix A**

### **Los Banos - Gates Transmission Project**

#### **Supporting Analysis: *Biological Resources***

##### **Background**

This supporting analysis is intended to (1) identify the potential effects of the proposed Los Banos – Gates Transmission Project (Project) based on the most recent available information and (2) compare these to the effects anticipated when the Project was first proposed in the 1980s. This analysis relies on the original final environmental impact statement (FEIS) prepared in 1988 for the Los Banos - Gates Transmission Project (1988 FEIS), especially volumes 2B and 3B prepared for the 1986 draft environmental impact statement (1986 DEIS). Additionally, Pacific Gas and Electric Company (PG&E) commissioned a field survey for special status plants and wildlife in April 2001. The resulting report (Jones & Stokes 2001) includes a considerable amount of updated information about the special status species in the vicinity of the proposed Project area.

The changes in the effects of the Project can be manifested either through changes in the species under consideration, changes in the federal or state listing status of those species, or changes in the design or implementation of the Project itself.

As described in the following sections, the list of species that are potentially affected by the Project has changed considerably. Additionally, the federal or state status of some of these species has changed since 1988. The construction of the Project itself would be performed much as was envisioned in 1988; therefore, the kinds of effects resulting from construction, operation, and maintenance of the transmission line would be similar to those described in the 1986 DEIS.

One change in the federal listing status that is evident in comparing the 1988 evaluation with the current regulatory regime is the change in candidate listings that have occurred. In 1996, the U.S. Fish and Wildlife Service (USFWS) redefined candidate species in a way that greatly reduced the number of candidate species (USFWS 1996). They did this primarily to reduce confusion about the legal status of candidate species. Prior to 1996, there were three categories of candidates:

- Category 1 (C1) included species for which there was sufficient information to support a listing proposal, but preparation of such a proposal was precluded by higher priority activities.

- Category 2 (C2) included species that were believed to be rare, but there was not sufficient data available about the distribution and threats to support a listing proposal.
- Category 3 (C3) included species that had been essentially dropped from further consideration because of various reasons, including taxonomic changes or evidence indicating that the species was more plentiful and/or less threatened than previously believed.

In 1996, the USFWS eliminated the sub-categories and created a single “candidate” list. This list initially included most of the former C1 species and a few former C2 species. Most of the former C2 species were dropped from the candidate list and became unofficial “species of concern”, which has no legal meaning or definition under the federal Endangered Species Act of 1973 (ESA) (16 USC 1531 et seq.). However, many regional and local USFWS offices maintain this unofficial list because the species are still of management concern even if they are no longer protected under the federal ESA.

## Special Status Plants

### Species Evaluated

The 1986 DEIS indicates that only three plant species of concern were actually observed within the Project area. Although Table E-4 in Volume 3B of the 1986 DEIS shows four species as being present, the accompanying text indicates that Arbrura ranch jewelflower (*Streptanthus insignis* var. *lyonii*) was known only from a couple of populations located several miles west of the Project area, but because little was known about the taxon at the time, it was felt there was a good chance for occurrence within the Project area. Of the three other species observed, one, the vernal fiddleneck (*Amsinckia vernicosa* var. *vernicosa*), is no longer considered a species of concern and was not considered during the 2001 field surveys. The other two species, the forked fiddleneck (*Amsinckia vernicosa* var. *furcata*) and Idria buckwheat (*Eriogonum vestitum*), were observed during the 2001 surveys.

A total of 34 special status plants were considered and evaluated in the 1988 EIS. Of these, 20 were searched for and evaluated during the April 2001 field surveys commissioned by PG&E (Jones & Stokes 2001) (Table A-1). Jones & Stokes (2001) also included an additional 17 special status plants that were not considered within the context of the 1988 EIS (Table A-2). For the purposes of evaluation, the total of 51 evaluated species are divided into those that were considered within both the 1986 DEIS and the Jones and Stokes report (2001), those that are additions to the list (i.e., those added in 2001), and those that were deleted from the 1988 list (Table A-3).

## Species Considered in Both the 1988 Biological Assessment and in PG&E Field Surveys

In addition to the forked fiddleneck and Idria buckwheat, the 2001 survey positively established the presence of three additional species that were on the 1988 list: cottony buckwheat (*Eriogonum gossypinum*), gypsum loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*), and Lost Hills saltbush (*Atriplex vallicola*). The survey determined that there is at least a moderate potential for three additional species from the 1988 list to occur in the Project area, including two species currently listed as endangered or threatened under the Federal ESA: the San Joaquin wooly-threads (*Monolopia congdonii*) and Hoover's eriastrum (*Eriastrum hooverii*). Although neither of these species was observed, it was acknowledged within the report that they may not have been evident at the time of the survey, due to the dry conditions in the area during the spring of 2001. Jones & Stokes (2001) indicate that Natural Diversity Data Base (NDDDB) records also support the potential presence of San Joaquin wooly-threads within the Project area.

A number of species were considered to potentially occur within the Project area in the 1986 DEIS, based on the limited information known about the species and the limited field evaluations that were actually performed at that time. The probability of occurrence within the Project area of most of these species was downgraded from “possible” to “low” based on the 2001 evaluations and the current understanding of the species’ ranges and habitat requirements. In many cases in which the potential for occurrence is low, there may be suitable habitat present within the Project area, but the Project area may simply be out of the established range for the species.

Several listing status changes occurred in the plants considered within both evaluations. San Joaquin wooly-threads, which had no listing status in 1988, is now listed as federally endangered; Hoover's eriastrum was a C2 species and is now a federally threatened species (but has been recently proposed for delisting [USFWS 2001]); both kern mallow (*Eremalche kernensis*) and California jewelflower (*Caulanthus californicus*) changed from C2 to federally endangered; and palmate bird's-beak (*Cordylanthus palmatus*) changed from proposed endangered to endangered. There were also a few changes in the California State listings and the California Native Plant Society (CNPS) lists (Table A-1). One species considered in both 1988 and 2001, the caper-fruited tropidocarpum (*Tropidocarpum capparideum*), is now believed to be extinct. As part of the 2001 survey, biologists looked for this species but did not find it.

## Species Added in the 2001 PG&E Report

The Jones & Stokes (2001) field survey and report included 17 plant species that were not considered within the context of 1986 DEIS (Table A-2). Of those additional species, four were observed within the Project area, and it was determined that an additional six species had at least a moderate potential for occurrence within the Project

area. None of the species that were added to the list of species evaluated in 2001 have any formal federal or state listing status, although several are on the CNPS 1b list.

The CNPS is a statewide non-profit organization of amateurs and professionals with a common interest in California's native plants. CNPS policy is not to be involved officially or unofficially in research for or writing of EIR or EIS documents for any agency. However, the CNPS has worked cooperatively with the USFWS and the California Department of Fish and Game (CDFG) in establishing an inventory to help direct efforts to identify, protect, and manage California's most rare, native botanical resources. The heart of the CNPS Inventory is an assessment of the current conservation status of each of the state's rare, threatened, and endangered plants. The list is not restricted to plants with state or federal protection.

### **Species Not Considered in the 2001 PG&E Report**

The DEIS evaluated 14 plant species that were not considered within the 2001 field surveys (Table A-3). Seven of these are wetland or vernal pool species: slough thistle (*Cirsium crassicaule*), Delta coyote-thistle (*Eryngium racemosum*), Delta tule-pea (*Lathyrus jepsonii*), colusa grass (*Neostapfia colusana*), San Joaquin Valley orcuttia (*Orcuttia inaequalis*), Sanford's arrowhead (*Sagittaria sanfordii*), and Greene's tuctoria (*Tuctoria greenii*). The Project area is outside the range of most of these species, and there are very few wetlands within the Project area. Of the remaining seven species, one, the bearded popcornflower (*Plagiobothrys hystriculus*), is now thought to be extinct, and three, the vernal fiddleneck (*Amsinckia vernicosa* var. *vernicosa*), rock daisy (*Erigeron peterophilus*), and San Joaquin saltbush (*Atriplex patula* ssp. *spicata*), are no longer of any federal, state or CNPS concern. The remaining three species were considered to have a potential for occurrence within the Project area in 1988 based on habitat requirements – although the nearest known populations of each of the three were several miles away from the Project area.

Significant changes in listing status include the change from candidate status to endangered status for colusa grass, San Joaquin Valley orcuttia, and Greene's tuctoria. Delta coyote-thistle was dropped from the candidate list, and several species were promoted to the CNPS 1b list from lower CNPS classification levels.

## **Special Status Animals**

### **Species Evaluated**

The surveys performed in support of the 1988 EIS positively identified four animal species of concern: the tri-colored blackbird (*Aigelaius tricolor*), Swainson's hawk (*Buteo swainsonii*), golden eagle (*Aquila chrysaetos*), and the federally endangered blunt-nosed leopard lizard (*Gambelia silus*). Additionally, the EIS reported that the bald



eagle (*Haliaeetus leucocephalus*) was known to be present occasionally at the Los Banos and Little Panoche reservoirs.

### **Species Considered in Both the 1988 Biological Assessment and in PG&E Field Surveys**

A total of eight animal species of concern were considered during both the 1988 and 2001 evaluations. Of these, four were observed in 2001: the golden eagle (*Aquila chrysaetos*), tri-colored blackbird (*Aigelaius tricolor*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and blunt-nosed leopard lizard (*Gambelia silus*). Possible sign (burrows, tracks, scat) was observed for three other species (San Joaquin kit fox [*Vulpes macrotis mutica*], giant kangaroo rat [*Dipodomys ingens*], and short-nosed kangaroo rat [*Dipodomys nitratoideus brevinasus*]). The remaining species, the California tiger salamander (*Ambystoma tigrinum californiense*), was not observed, but potential habitat areas were noted along some of the water courses crossed by the proposed transmission line route. Golden eagles were observed at several locations throughout the nonagricultural portions of the Project area. Several active golden eagle nests were located on nonspecified 230-kV and 500-kV transmission structures in predominantly grassland areas. Wildlife maps from the 1986 DEIS (Volume 4B, Wildlife Route Data Map) show potential habitat or observations around milepost 15 of the east and west routes and near milepost 45 of the west route.

Changes in listing status include the giant kangaroo rat change from proposed endangered to endangered, and the upgrade of the California tiger salamander from candidate C2 to true candidate (the Santa Barbara distinct population segment is listed as endangered).

### **Species Added in the 2001 PG&E Report**

Jones & Stokes (2001) evaluated an additional 10 species that were not considered in the 1986 DEIS (Table A-5). Of these, five were observed within the study area and possible sign of another, the American badger (*Taxidea taxus*), was observed. Of these 11 species, only one, the California red-legged frog (*Rana aurora draytonii*), is listed under the federal ESA; it may occur in the few wetland areas or along the stream courses crossed by the proposed route.

Jones & Stokes (2001) indicate (page 15) that the NDDB has records for three additional species in the Project area that were not considered in either the 1988 or in the 2001 evaluations: the Tulare grasshopper mouse (*Onychomys torridus tularensis*) (federal species of concern, no state status); the California horned lizard (*Phrynosoma coronatum frontale*) (state and federal species of concern); and the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). The reasons these species were excluded from consideration in Jones & Stokes (2001) are not known.

## Species not Considered in 2001 PG&E Report

The 1986 DEIS considered 13 species that were not considered in the Jones & Stokes (2001) report (Table A-6). Three of these, Swainson's hawk (*Buteo swainsonii*), ciervo aegilian scarab beetle (*Aegialia concinna*), and San Joaquin dune beetle (*Coelus gracilis*), were reported within the NDDB to occur within or near the Project area (Jones & Stokes 2001, page 15). The bald eagle (*Haliaeetus leucocephalus*) was not considered within Jones & Stokes (2001). However, the 1986 DEIS indicates that the bald eagle is occasionally present in the vicinity of the Los Banos and Little Panoche reservoirs, but is more common around the San Luis reservoir north of the Project area. The level of occurrence corresponds to periods of high waterfowl use of these water bodies. The 1986 DEIS indicates that in 1985, Swainson's hawks successfully nested along Los Banos Creek area, west of the Los Banos Substation (Volume 2B, p. 3.5-5; also see the Wildlife Route Data Map in Volume 4B). Swainson's hawks were observed at two locations within the study area (two to three miles southwest and southeast of Los Banos Substation), but no nests were found. The 1986 DEIS notes that the prey base for Swainson's hawks was generally poor except for a few nonspecified areas.

The other species listed in Table A-6, except potentially the San Joaquin pocket mouse (*Perognathus inornatus inornatus*), appear to be unlikely to occur within the Project area. The giant garter snake (*Thamnophis couchi gigas*) is limited to marshy areas located a considerable distance from the Project site. There is no suitable habitat for the white-faced ibis (*Plegadis chihi*) within the Project area, and the Project area is well outside the known range for the six remaining insect species in Table A-6.

## Potential Effects, Considerations, Mitigation Measures

The Supporting Environmental Report (Volume 2B, sections 4 and 5) and the biological assessment (Volume 3B, section G) prepared in support of the 1986 DEIS describe the potential effects of the proposed transmission line. These descriptions continue to be accurate. Some of the potential impacts are considered short-term if they are related to construction, while others are long-term if they will continue to affect special status species or habitats after construction is completed.

## Construction Impacts and Mitigation Measures

Potential impacts associated with construction include:

- Disturbance of vegetation at sites used for the construction of the structures, stringing and tensioning of the conductors, work camps, storage areas, and along any temporary access roads that are installed
- Noise from construction equipment that could disrupt wildlife
- Destruction of dens or burrows
- Destruction of nesting or roosting sites

These potential impacts are considered not significant, and implementation of mitigation measures during planning, design, and construction would ensure minimization of any impacts. The final route alignment and structure locations would be selected so that they would disturb the least amount of sensitive plant communities and avoid known populations of rare plants and animals to the extent possible while maintaining operability of the line. Sensitive areas can be avoided completely by placing structures in adjacent, non-sensitive areas and by spanning sensitive areas. Indirect effects, such as erosion and sedimentation, would be minimized using standard best management practices during construction. Additionally, construction activities would be adjusted if possible so that adverse effects on wildlife are minimized, such as not working near known nest sites during nesting season. Specifics of these requirements will be worked out in the biological assessment and necessary mitigation committed to in the Record of Decision (ROD).

Several permanent water bodies and intermittent water courses are traversed by the proposed route, including at least one vernal pool at milepost 15.25. The transmission lines would span these wetlands and riparian areas without the need for structure placements in areas that would permanently affect these locally rare communities.

### **Long-Term Impacts and Mitigation Measures**

Potential long-term impacts are considered not significant and include the permanent loss of vegetation, erosion and potential weed invasion at structure pad sites and access roads, avian collisions with power lines, and permanent displacement of wildlife because of increased human presence and activity for maintenance of the line. On the other hand, the presence of the transmission structures may increase the number of available nest and perch sites for Swainson's hawks (*Buteo swainsonii*), golden eagles (*Aquila chrysaetos*), and other raptors.

As with the short-term construction effects on vegetation and wildlife use areas, the long-term impacts can be minimized if careful consideration is given to the route of the transmission line, the locations of structure pads, the routes of all access roads, and construction methods. Access roads would be selected to avoid important wildlife areas to minimize the adverse effects of the occasional maintenance traffic. Where appropriate, the access roads would be gated to minimize unauthorized traffic.

Avian collisions with the conductors or ground wires are most likely to occur in areas frequented by large flocks of birds (such as waterfowl) or in areas near the roosting or nesting sites of raptors or other large birds. Most such collisions occur during foggy conditions. Most of the proposed route is well removed from waterfowl areas (except at Los Banos and Little Panoche reservoirs) and for most of the proposed route, the lines would be between 500 and 900 feet above the valley floor, placing the conductors and ground wires above the fog belt at least part of the time. Federal agencies are now required to consider avian collisions and other adverse effects on migratory birds under Executive Order (E.O.) 13186 (2001).

## Required Actions

The biological surveys conducted in support of the proposed Project indicate that there are at least 19 and possibly as many as 40 species of concern within the Project area. Potential impacts to these species are varied, but with appropriate mitigation, impacts could be reduced to less than significant levels during the final planning and construction phases.

Consultation with the USFWS under Section 7 of the ESA may be required prior to issuance of a final ROD and initiation of construction. This may take the form of either a formal or an informal consultation, as appropriate, depending on the level of potential impacts of the Project. The consultation will provide any specific requirements for protection of federally listed species under the ESA. The CDFG will also provide any requirements for protection of state-listed species through the California Public Utilities Commission's (CPUC's) California Environmental Quality Act (CEQA) process. Because the habitat in the Project corridor is relatively homogeneous, there is a good understanding of species occurrence and distribution. Mitigation measures are identified in the DEIS to reduce potential impacts to habitat during construction and operation of the transmission line for the species considered in the DEIS. Additional biological surveys may be required in areas where sensitive species have been identified to verify the presence of specific species at structure locations, access roads, and construction areas to determine any site-specific conditions that can be avoided. Specific mitigation measures will be designed to minimize the impacts; if impacts cannot be fully minimized, then the extent of the adverse effects will be well understood.

Final route selection will consider the findings of the 1988 and 2001 reports so as to avoid sensitive plant communities, plant populations, and wildlife areas. The evaluation will be completed by a biologist at an appropriate time of the year to determine what species are present or may be present at these locations, and what specifically can be done to minimize impacts to those species. Once these details are available, specific mitigative measures will be designed to minimize the impacts; if impacts cannot be fully minimized, then the extent of the adverse effects will be well understood.

## References Cited

U.S. Department of Energy (1988). Environmental Impact Statement for the California-Oregon Transmission Project and the Los-Banos-Gates Transmission Project. DOE/EIS-0128.

Jones and Stokes (2001). Results of the special status plant and wildlife surveys conducted along the proposed Path 15 transmission line project in Fresno and Merced

Counties. June 2001. Sacramento CA. Prepared for Pacific Gas and Electric Company, San Francisco, CA.

Executive Order 13186 (2001) Responsibilities of federal agencies to protect migratory birds. 10 January 2001. (66 FR 3853 to 3856, 17 January 2001)

U.S. Fish and Wildlife Service (1996) Endangered and Threatened Wildlife and Plants; Notice of Final Decision on Identification of Candidates for Listing as Endangered or Threatened. 61 FR No. 235 PP 64481 – 64485. 5 December 1996.

U.S. Fish and Wildlife Service (2001) Endangered and Threatened Wildlife and Plants; Proposal to Delist *Eriastrum hooveri* (Hoover's woolly-star).

**Table A-1. Special Status Plant Species Considered Within the 1986 DEIS and the 2001 Field Surveys**

Species	Common Name	USFWS Status <sup>a</sup>		CDFG Status <sup>a</sup>		CNPS List <sup>b</sup>		Habitat Present		Potential for Occurrence	
		1988	2001	1988	2001	1988	2001	1988	2001	1988	2001
<i>Amsinckia vernicosa</i> var. <i>furcata</i>	forked fiddleneck	C2	SC	SC	-	1b	4	yes	yes	observed	observed
<i>Atriplex vallicola</i>	Lost Hills saltbush	C2	SC	-	-	1b	1b	yes	yes	moderate	observed
<i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>	gypsum loving larkspur	-	-	SC	-	4	4	yes	yes	moderate	observed
<i>Eriogonum gossypinum</i>	cottony buckwheat	C2	SC	-	-	4	4	yes	yes	moderate	observed
<i>Eriogonum vestitum</i>	Idria buckwheat	C3c	-	SC	-	4	4	yes	yes	observed	observed
<i>Eriastrum hooverii</i>	Hoover's eriastrum	C2	T	-	-	4	1b	no	yes	low	moderate
<i>Fritillaria agrestis</i>	stink bells	C2	SC	SC	-	4	4	yes	yes	moderate	moderate
<i>Monolopia (Eatonella) congdonii</i>	San Joaquin wooly-threads	-	E	-	-	4	1b	no	yes	low	moderate
<i>Campanula exigua</i>	chaparral harebell	-	-	SC	-	4	1b	no	no	low	low
<i>Caulanthus californicus</i>	California jewelflower	C2	E	SC	E	3	1b	yes	yes	moderate	low
<i>Clarkia breweri</i>	Brewer's clarkia	-	-	SC	-	4	4	yes	yes	moderate	low
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>	hispid bird's-beak	C2	SC	SC	-	1b	1b	yes	yes	moderate	low
<i>Cordylanthus palmatus</i>	palmate bird's-beak	PE	E	E	E	1b	1b	yes	yes	moderate	low
<i>Eremalche kernensis</i>	kern mallow	C2	E	-	-	4	1b	yes	no	moderate	low
<i>Eriogonum argillosum</i>	clay-loving buckwheat	-	-	-	-	4	4	no	no	low	low
<i>Eriophyllum jepsonii</i>	Jepson's wooly sunflower		-	SC	-	4	4	no	no	low	low
<i>Lessingia (Benitoa) occidentalis</i>	benitoa	C3c	-	-	-	4	1b	no	yes	moderate	low
<i>Nemacladus gracilis</i>	slender nemacladus	-	-	-	-	4	4	yes	no	moderate	low
<i>Streptanthus insignis</i> var. <i>lyonii</i>	Arbrura Ranch jewelflower	C2	SC	-	-	3	1b	yes	no	moderate	low
<i>Tropidocarpum capparideum</i>	caper-fruited tropidocarpum	C2	SC	-	-	1b	1A	no	yes	low	extinct

a. E = endangered, T = threatened, PE = proposed endangered, C2 – candidate category 2 (information insufficient to support listing[no longer in use]), C3c - candidate category 3c (less threatened or more plentiful than previously believed [no longer in use]), SC – species of concern.

b. 1b – species is rare and endangered in California and elsewhere, 4 – species of limited distribution

**Table A-2. Special Status Plant Species Considered Within the 2001 Field Surveys but Not in 1986 DEIS**

Species	Common Name	USFWS Status <sup>a</sup>		CDFG Status <sup>a</sup>		CNPS List <sup>b</sup>		Habitat Present		Potential for Occurrence	
		1988	2001	1988	2001	1988	2001	1988	2001	1988	2001
<i>Atriplex coronata</i> var. <i>coronata</i>	crownscale	*	-	*	-	*	4	-	yes		observed
<i>Delphinium recurvatum</i>	recurved larkspur	*	SC	*	-	*	4	-	yes		observed
<i>Eriogonum nudum</i> var. <i>indictum</i>	protruding buckwheat	*	-	*	-	*	4	-	yes		observed
<i>Eschscholzia hypaeoides</i>	San Benito Poppy	*	-	*	-	*	1b	-	yes		observed
<i>Acanthomintha obovata</i> spp. <i>obovata</i>	San Benito thornmint	*	SC	*	-	*	4	-	yes		moderate
<i>Convolvulus simulans</i>	small-flowered morning-glory	*	-	*	-	*	4	-	yes		moderate
<i>Deinandra halliana</i>	Hall's tarweed	*	-	*	-	*	1b	-	yes		moderate
<i>Layia heterotricha</i>	pale-yellow layia	*	SC	*	-	*	1b	-	yes		moderate
<i>Lepidium jaredii</i> ssp. <i>album</i>	Panoche peppergrass	*	SC	*	-	*	1b	-	yes		moderate
<i>Madia radiata</i>	showy Madia	*	-	*	-	*	4	-	yes		moderate
<i>Antirrhinum ovatum</i>	ova-leaved snapdragon	*	-	*	-	*	4	-	no		low
<i>Astragalus macrodon</i>	Salinas milkvetch	*	-	*	-	*	4	-	no		low
<i>Atriplex cordulata</i>	heartscale	*	SC	*	-	*	1b	-	no		low
<i>Atriplex joaquiniana</i>	San Joaquin spearscale	*	SC	*	-	*	1b	-	yes		low
<i>Layia munzii</i>	Munz feets tidy-tips	*	-	*	-	*	1b	-	yes		low
<i>Malacothamnus hallii</i>	Hall's bush-mallow	*	-	*	-	*	1b	-	no		low
<i>Twisselmannia californica</i>	kings gold	*	-	*	-	*	1b	-	no		low

a. SC – species of concern, \* Federal or state status in 1988 for these species has not been determined.

b. 1b – species is rare and endangered in California and elsewhere, 4 – species of limited distribution

**Table A-3. Special Status Plant Species Considered Within 1986 DEIS but Not in the 2001 Surveys**

Species	Common Name	USFWS Status <sup>a</sup>		CDFG Status <sup>a</sup>		CNPS List <sup>b</sup>		Habitat Present		Potential for Occurrence	
		1988	2001	1988	2001	1988	2001	1988	2001	1988	2001
<i>Amsinckia vernicosa</i> var. <i>vernica</i>	vernal fiddleneck	C2	-	SC	-	5	-	yes	-	observed	-
<i>Acanthomintha lanceolata</i>	Santa Clara thornmint	-	-	SC	-	4	4	no	-	moderate	-
<i>Atriplex patula</i> ssp. <i>spicata</i>	San Joaquin saltbush	C2	SC	-	-	5	-	yes	-	moderate	-
<i>Cryptantha rattanii</i>	Rattan's cryptantha	-	-	SC	-	4	4	yes	-	moderate	-
<i>Malacothamnus aboriginum</i>	Indian Valley bush-mallow	-	-	SC	-	4	1b	yes	-	moderate	-
<i>Cirsium crassicaule</i>	slough thistle	C2	SC	SC	-	1b	1b	no	-	low	-
<i>Erigeron pterophilus</i>	rock daisy	-	-	SC	-	5	?	no	-	low	-
<i>Eryngium racemosum</i>	Delta coyote-thistle	C1	SC	E	E	1b	1b	yes	-	low	-
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule-pea	C2	SC	-	-	1b	1b	yes	-	low	-
<i>Neostapfia colusana</i>	colusa grass	C2	T	E	E	1b	1b	no	-	low	-
<i>Orcuttia inaequalis</i>	San Joaquin Valley orcuttia	C1	T	E	E	1b	1b	no	-	low	-
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	C2	-	-	-	3	1b	no	-	low	-
<i>Tuctoria greenii</i>	Greene's tuctoria	C1	E	R	R	1b	1b	no	-	low	-
<i>Plagiobothrys hystriculus</i>	bearded popcornflower	C2	-	-	-	1b	1A	yes	-	moderate	extinct

a. E = endangered, T = threatened, C1 – candidate category 1 (data sufficient to support formal listing proposal[no longer in use – now simply “candidate”]), C2 – candidate category 2 (information insufficient to support listing[no longer in use]), SC – species of concern, R – rare.

b. 1A – species presumed to be extinct, 1b – species is rare and endangered in California and elsewhere, 3 – insufficient information to determine status 4 – species of limited distribution, 5 – species widespread, not threatened



**Table A-4. Special Status Animal Species Considered in 1986 DEIS and in the 2001 Field Surveys**

Species	Common Name	USFWS Status <sup>a</sup>		CDFG Status <sup>a</sup>	Observations <sup>b</sup>		Potential Habitat	Potential for Occurrence
		1988	2001	2001	1988	2001		
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	E	T	yes	possible	yes	moderate-high
<i>Dipodomys ingens</i>	giant kangaroo rat	PE	E	E	yes	possible	yes	moderate-high
<i>Dipodomys nitratoide brevinasus</i>	short-nosed kangaroo rat	C2	SC		no	possible	yes	moderate-high
<i>Ammospermophilus nelsoni</i>	San Joaquin antelope squirrel	*	SC	T	no	yes	yes	observed
<i>Aigelaius tricolor</i>	tri-colored blackbird	C2	SC	SC	yes	yes	yes	observed
<i>Gambelia silus</i>	blunt nosed leopard lizard	E	E	E	yes	yes	yes	observed
<i>Ambystoma tigrinum californiense</i>	California tiger salamander	C2	E/C	SC	no	no	yes	moderate-high
<i>Aquila chrysaetos</i>	golden eagle	*	-	SC		yes	yes	observed

a: E = endangered, T = threatened, PE = proposed endangered, C2 – candidate category 2 (information insufficient to support listing[no longer in use]), SC – species of concern. E/C – California tiger salamander is listed as endangered in Santa Barbara County, and is a candidate for listing elsewhere in its range.

b: “possible” indicates that positive identification was not possible, but potential sign (i.e. burrows, scat) were observed.

**Table A-5. Special Status Animal Species Considered in the 2001 Field Surveys but Not in 1986 DEIS**

Species	Common Name	USFWS Status <sup>a</sup>		CDFG Status <sup>a</sup>	Observations <sup>b</sup>		Potential Habitat	Potential for Occurrence
		1988	2001	2001	1988	2001		
<i>Taxidea taxus</i>	American badger	*	-	SC		possible	yes	moderate-high
<i>Myotis yumanensis</i>	Yuma myotis	*	SC	-		no	yes	moderate-high
<i>Lanius ludovicianus</i>	Loggerhead shrike	*	-	SC		yes	yes	observed
<i>Eremophila alpestris actia</i>	California horned lark	*	-	SC		yes	yes	observed
<i>Athene cunicularia hypugea</i>	western burrowing owl	*	SC	SC		yes	yes	observed
<i>Circus cyaneus</i>	Northern harrier	*	-	SC		yes	yes	observed
<i>Masticophis flagellum ruddocki</i>	San Joaquin whipsnake	*	-	SC		no	yes	moderate-high
<i>Rana aurora draytonii</i>	California red-legged frog	*	T	SC		no	yes	moderate-high
<i>Rana boylei</i>	foothill yellow-legged frog	*	SC	SC		no	yes	moderate-high
<i>Clemmys marmorata pallida</i>	western pond turtle	*	SC	SC		no	yes	moderate-high

a. T = threatened, SC – species of concern, \* federal or state status in 1988 for these species has not been determined.

b. “possible” indicates that positive identification was not possible, but potential sign (i.e. burrows, scat) were observed.

**Table A-6. Special Status Animal Species Considered in 1986 DEIS but Not in the 2001 Surveys**

Species	Common Name	USFWS Status <sup>a</sup>		CDFG Status <sup>a</sup>	Observations		Potential Habitat	Potential for Occurrence
		1988	2001	2001	1988	2001		
<i>Haliaeetus leucocephalus</i>	bald eagle	E	T	E	yes	-	yes	moderate
<i>Buteo swainsonii</i>	Swainson's eagle	-	-	T	yes	-	yes	high
<i>Perognathus inornatus inornatus</i>	San Joaquin pocket mouse	C2	SC	SC	no	-	yes	unknown
<i>Plegadis chihi</i>	white-faced ibis	C2	SC	SC	no	-	no	low
<i>Thamnophis couchi gigas</i>	giant garter snake	C2	T	T	no	-	no	low
<i>Oravelia pege</i>	Dry Creek Cliff strider bug	C2	SC	SC	no	-	no	low
<i>Trigonoscutea doyeri</i>	Doyen's trigonoscutea weevil	C1	SC	SC	no	-	no	low
<i>Hydroporus hirsutus</i>	wooly hydroporus diving beetle	C2	SC	SC	no	-	no	low
<i>Lytta hoppingi</i>	Hopping's blister beetle	C2	SC	SC	no	-	unknown	low
<i>Lytta molesta</i>	Molestan's blister beetle	C2	SC	SC	no	-	unknown	low
<i>Lytta morrisoni</i>	Morrison's blister beetle	C2	SC	SC	no	-	unknown	low
<i>Aegialia concinna</i>	ciervo aegilian scarab beetle	C2	-	SC	no	-	yes	moderate
<i>Coelus gracilis</i>	San Joaquin dune beetle	C2	SC	SC	no	-	yes	moderate

a. E = endangered, T = threatened, C1 – candidate category 1 (data sufficient to support formal listing proposal[no longer in use – now simply “candidate”]), C2 – candidate category 2 (information insufficient to support listing [no longer in use]), SC – species of concern.

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## Appendix B

### Los Banos - Gates Transmission Project

#### Supporting Analysis: *Environmental Justice*

##### Background

Environmental justice refers to a federal policy in which federal actions should not result in disproportionately high and adverse impacts on minority<sup>1</sup> or low-income populations. E.O. 12898 (59 FR 7629), issued in 1994, directs federal executive agencies to consider environmental justice under the National Environmental Policy Act of 1969 (NEPA). Council on Environmental Quality (CEQ) guidance on implementing NEPA can be found at 40 CFR 1500 – 1508 (CEQ 1986). Because the E.O. on environmental justice was not implemented until 1994, no analysis was done of environmental justice in the 1986 DEIS.

The CEQ has provided guidance for addressing environmental justice (CEQ 1997). U.S. Department of Energy (DOE) guidance is found in *Draft Guidance on Incorporating Environmental Justice Considerations into the Department of Energy's National Environmental Policy Act Process*.<sup>2</sup> According to that guidance, a minority population should be identified where the minority population percentage exceeds 50 percent or the minority population percentage of the affected area is “meaningfully greater” than the minority percentage in the general population or other appropriate unit of geographic analysis. A minority population also exists if there is more than one minority group and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds. Low-income populations are to be identified with the annual statistical poverty thresholds from the Census’ Current Population Reports, Series P-60, on Income and Poverty.

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<sup>1</sup> The CEQ Guidance for performing environmental justice reviews defines “minority” as American Indian or Alaskan Native, Asian or Pacific Islander, Black not of Hispanic Origin or Hispanic (CEQ 1997). The 2000 Census of population also allowed individuals to identify themselves as belonging to more than one race.

<sup>2</sup> *Draft Guidance on Incorporating Environmental Justice Considerations into the Department of Energy's National Environmental Policy Act Process*, U.S. Department of Energy Environment, Safety and Health, Office of NEPA Policy and Assistance, April, 2000.

## Supporting Analysis

For the purpose of this supporting analysis, a minority population is defined to exist if the percentage of minority populations within the individual census block groups<sup>3</sup> potentially affected by the Los Banos - Gates Transmission Project, individually or in aggregate, exceeds the corresponding percentage of minorities in the entire state of California by 20 percentage points, or if the corresponding percentage of minorities within these census block groups is at least 50 percent. A low-income population is defined to exist if the percentage of low-income population within a census block group exceeds the corresponding percentage of low-income population in the entire state of California by 20 percentage points, or if the corresponding percentage of low-income population within a census block group is at least 50 percent. This specific procedure, which is also used by the U.S. Nuclear Regulatory Commission (NRC) (2001), is consistent with the CEQ and DOE guidance and has been used successfully to identify minority and low-income communities in EISs for the NRC's Office of Nuclear Reactor Regulation and Office of Nuclear Material Safety and Safeguards.

The scope of the review as defined in CEQ guidance should include an analysis of impacts on minority and low-income populations, the location and significance of any environmental impacts during operations on populations that are particularly sensitive, and any additional information pertaining to mitigation. The descriptions to be provided by this review should state whether these impacts are likely to be disproportionately high and adverse and should evaluate the significance of such impacts.

## Affected Environment

The geographic distribution of minority and low-income populations was examined for all census block groups that were located at least partially within a 2,000-foot-wide corridor centered on the proposed power line. This area is referred to as the "affected area." This affected area encompasses seven block groups: one in Merced County and six in Fresno County. The analysis used the most recent available block group-level data. Racial data were obtained from the 2000 Census (Census 2001a), while income data were extracted from the 1990 Census (Census 1992).

Following these criteria, Table B-1 indicates how many census block groups within Merced and Fresno counties exceed the threshold for determining minority and low-income populations. Figures B-1 and B-2 show the distribution of census block groups for the minority and low-income populations, respectively (shaded areas).

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<sup>3</sup> A census block group is a combination of census blocks, which are statistical subdivisions of a census tract. A census block is the smallest geographic entity for which the Census Bureau collects and tabulates decennial census information. A census tract is a small, relatively permanent statistical subdivision of counties delineated by local committees of census data users in accordance with Census Bureau guidelines for the purpose of collecting and presenting decennial census data. Census block groups are subsets of census tracts (Census 1994; Census 2001b).

**Table B-1. Minority and Low-Income Population Census Block Groups in the Affected Area**

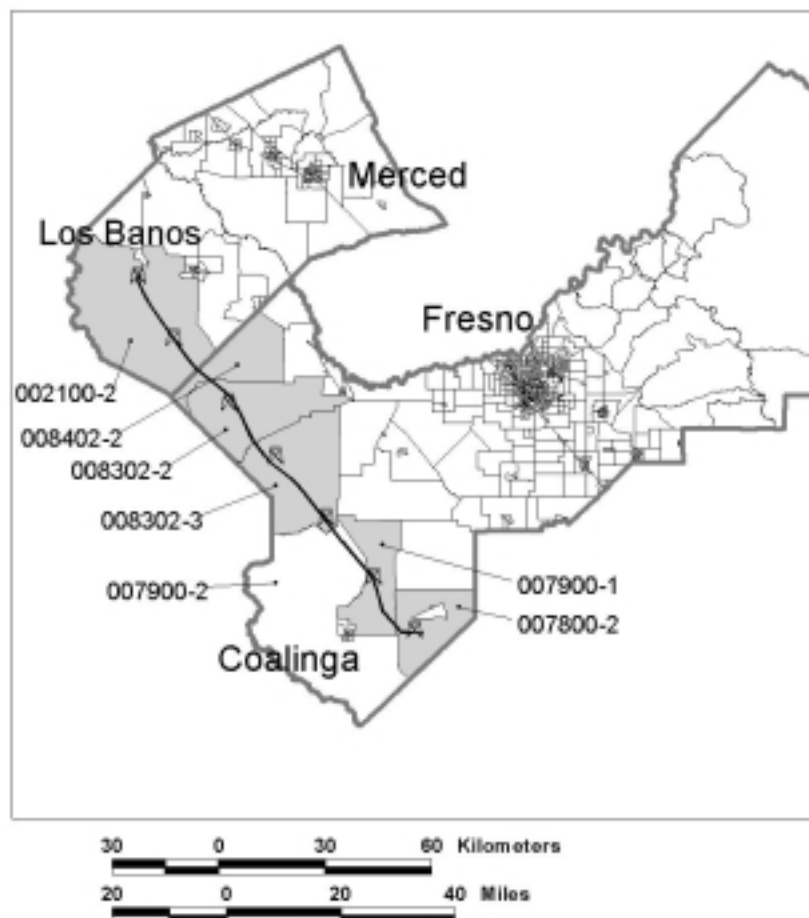
<b>Category</b>	<b>State Average (Percent)</b>	<b>Threshold for Minority or Low- Income Population (Percent)</b>	<b>Number of Block Groups Exceeding Threshold</b>	
			<b>Merced County</b>	<b>Fresno County</b>
American Indian or Alaskan Native	1.0	21.0	0	0
Asian	10.9	30.9	0	0
Pacific Islander	0.4	20.4	0	0
Black	6.7	26.7	0	0
Other race or multiple race	21.5	41.5	0	4
All minorities	53.3	50.0	1	5
Hispanic (any race)	32.4	50.0	1	4
Low-Income (1990)	12.5	32.5	0	0

**2000 Census Data for  
Asian, Black, Hispanic,  
Native American, Pacific  
Islander, Other Ethnic, and  
Overall Minority Populations**

Gray denotes block groups  
with environmental justice concerns.  
Tract and block group numbers provided.

6 block groups highlighted

-  Transmission Line
-  Counties
-  Block Groups



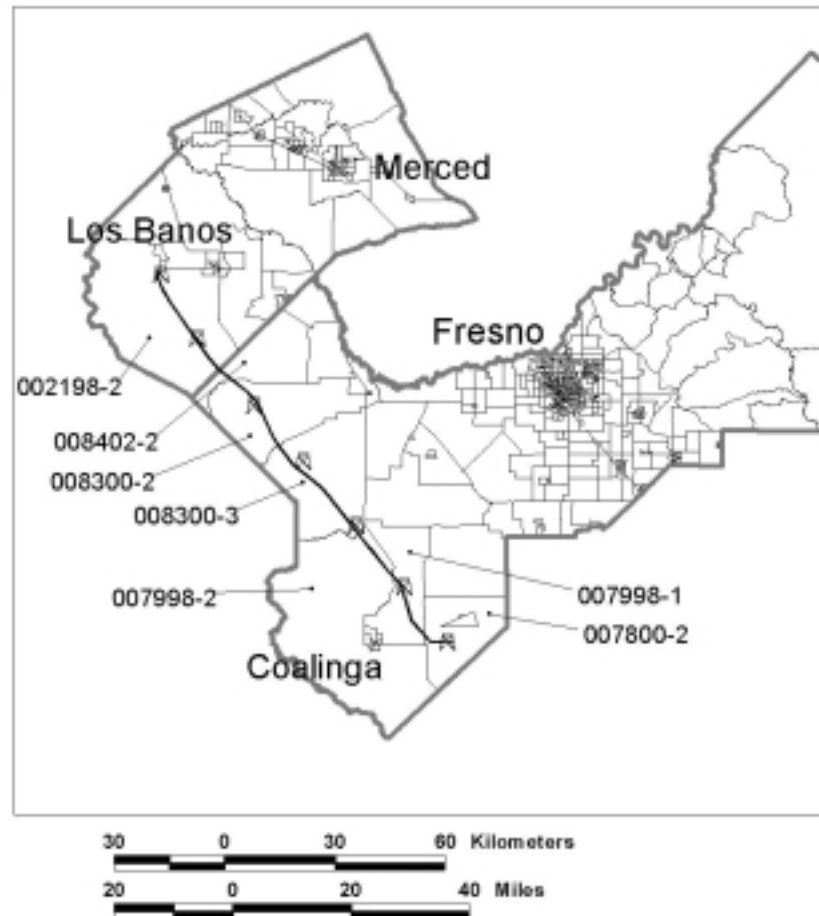
**Figure B-1. Geographic Distribution of Minority Populations (shown in shaded areas)  
Within the Project Corridor, Based on Census Block Group Data**



# **1990 Census Data for Low-Income Populations**

Gray denotes block groups  
with environmental justice concerns.  
Tract and block group numbers provided.  
No block groups highlighted

-  Transmission Line
-  Counties
-  Block Groups



**Figure B-2. Geographic Distribution of Low-Income Populations (shown in shaded areas)  
Within the Project Corridor Based on Census Block Group Data**

Within the affected area, there are high percentages of Hispanic and multiple-race persons, and there is also a smaller black population (the latter is over 25 percent of the population of tract-block group 7800-2, near Coalinga, but does not rise to the 20-percentage-point criterion) and American Indian populations, as described below. No block group was identified as a low-income block group by the 20-percentage-point criterion; however, significant numbers of low-income individuals are present. Block groups 7800-2, 7998-1, 7998-2, and 8300-3 all had more than 20 percent of their population living in low-income households in 1990. Only block group 8402-2 had a low-income population below the state average of 12.5 percent.

It is important to note that the block groups in question are relatively large, and that these data do not reveal how these populations are distributed within the block groups. The presence of minority populations within the block groups does not imply that they are necessarily within or near the Project corridor. While no houses existed in the corridor at the time of the 1986 DEIS, it is not known if that has changed (see Section 9.0 of this Supplement Analysis for further discussion regarding land use). Although a detailed house-by-house inventory was not done, the area is largely rural and sparsely populated. The centerline routing would avoid any homes that may have been built in the Project corridor since 1986.

The majority of the population near the Project is located in the town of Coalinga (population 11,668, according to the 2000 census), approximately 12 miles west of Gates Substation, or on the east side of Interstate 5, which parallels the transmission line approximately two to five miles away. Los Banos, which is east of Interstate 5, has a population of 25,869 according to the 2000 census. The population of all block groups at least partially within 1,000 feet of the proposed centerline is 11,360 in Fresno County and 1,835 in Merced County. Note that these block groups cover a large area and that neither Coalinga nor Los Banos is contained in these block groups, although one does surround Coalinga. When block groups that are at least partially within an area 10 miles from the proposed centerline are included, the population is 32,909 in Fresno County and 28,508 in Merced County, for a total of 61,417. Thus, the cities of Los Banos and Coalinga make up over 60 percent of the population of this larger area. The population of the block groups that are at least partially within the 2,000-foot corridor amounts to about 21 percent of the larger area's population.

## **Environmental Consequences**

With the locations of minority and low-income populations identified in the affected area, an evaluation was conducted to determine whether any of the environmental impacts of the proposed action could affect these populations in a disproportionate manner within the corridor for the Los Banos - Gates Transmission Project. Within the Project area, it was determined that a few potential environmental impacts could affect human populations; all of these were considered small for the general population. These include:

- Electric shock and electromagnetic fields (discussed in Section 12.0 of this Supplement Analysis)
- Aesthetic and quality of life impacts (discussed in Sections 10.0 and 11.0)
- Cultural resource impacts (discussed in Section 13.0)

The pathways through which the potential environmental impacts associated with the Los Banos - Gates Transmission Project could affect human populations are discussed in each associated section of the 1986 DEIS and are also discussed in the body of this report. For the most part, these impacts are of relatively short range. No unusual resource dependencies or practices, such as subsistence agriculture, hunting, or fishing, that would disproportionately affect minority or low-income populations could be found. In addition, the analysis did not identify any location-dependent disproportionate impacts affecting these populations. The analysis concludes that the impacts from the Los Banos-Gates Transmission Project to minority and low-income populations would be small and would not be disproportionate, and that no special mitigation actions would be warranted.

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## **Appendix C**

### **Los Banos - Gates Transmission Project**

#### **Supporting Analysis: *Electrical Effects***

##### **Electric Fields**

The electric field that was calculated for the Los Banos - Gates transmission line is 8.2 kilovolts per meter (kV/m) at the centerline of the structures. At the edge of the right-of-way, the electric field is calculated to be 1.7 kV/m. The maximum total induced body current in a person would be 0.13 milliamp (mA) in the 8.2-kV/m field and 0.03 mA in the 1.7-kV/m field, both of which are below the level of perception. The induced short circuit current in a camper truck parked directly in the 8.2-kV/m electric field would be about 2.3 mA, which would be perceptible but only about half of the 5-mA standard set by the National Electrical Safety Code (NESC). Thus, the short circuit current would be perceptible if a grounded person touched a camper truck parked at the maximum electric field point, but would still be far below the let-go threshold of 9 mA for men, 6 mA for women, and 5 mA for children. This short-circuit current would be only about 0.5 mA for a camper truck parked at the edge of the right-of-way. Thus, ordinary vehicles parked within the right-of-way would not present a shock hazard.

With respect to long-term biological effects of electric fields, years of operating experience with 500-kV transmission lines have not revealed any identifiable biological hazard. Numerous studies of employee health and numerous studies of test animals and fundamental biological mechanisms in the laboratory do not indicate that these transmission lines pose a long-term biological hazard. These studies continue, and will continue into the future, but nothing to date indicates that there are any long-term health effects that can be linked to the effects of electric fields from 500-kV transmission lines.

##### **Magnetic Fields**

The maximum magnetic field calculated for this transmission line when it is carrying 1,000 amps is 168 milligauss at the centerline of the structures. At the edge of the right-of-way, the magnetic field is calculated to be 36 milligauss. At 1,000 amps, the transmission line would normally be carrying 1,500 megawatts (MW). These numbers are similar to those obtained by measuring common household appliances; for instance, 168 milligauss at the centerline of the structures is slightly less than that of a household microwave oven, which was measured at 213 milligauss. Thirty-six milligauss lies between 31 milligauss at a computer terminal and 41 milligauss observed near an electric pencil sharpener. Overall levels 200 feet from the transmission line are in the same range as those found in typical public buildings.

Several studies performed in Colorado have suggested a correlation between the incidence of childhood cancer and proximity of homes to high current-carrying distribution and service lines. A similar study done in Rhode Island found no relationship between childhood leukemia and electric power line configurations. Several additional studies are under way to determine if any such effect can be identified and to identify possible biological mechanisms for any effects. This area of research is extremely active. Until more is known, projects are proceeding on the basis that exposures to magnetic fields from transmission lines are in the same range as exposures to other electrical equipment encountered in everyday life. Long experience with such equipment has not demonstrated any pattern of health problems. Identifying any linkage between fields and health problems is very difficult because if an effect exists, it is not a strong one.

Based upon a review of the literature and discussions with investigators active in this research area, it can be concluded that magnetic field exposure due to a 500-kV transmission line is of the same order of magnitude as normal ambient levels found in everyday life. Thus, they do not cause any significantly greater risk to biological organisms than the environment without a 500-kV transmission line. This would suggest that if any hazards do exist, they are small compared to other environmental factors. Finally, no one has proven any physical mechanisms by which magnetic fields could cause harm to biological organisms.

## **Appendix D**

### **Los Banos - Gates Transmission Project**

#### **Supporting Analysis: *Cultural Resources***

##### **Background**

This analysis supports and updates the cultural resources analysis for the 1988 *FEIS for the California - Oregon Transmission Project and the Los Banos - Gates Transmission Project*. Specifically, this analysis focuses on the Los Banos - Gates west corridor alternative, which was considered the preferred route in the FEIS, as the route being considered in this supporting analysis. The Project area comprises a linear area about 84 miles long and approximately 2,000 feet wide, extending south from the existing Los Banos Substation in Merced County to the existing Gates Substation in Fresno County. For purposes of updating the cultural resources baseline information, a corridor width of one mile on either side of the proposed centerline is examined. The exact centerline path within the 2,000-foot-wide corridor, including structure locations, will be determined during the design phase of the Project. The final right-of-way width would be approximately 200 feet.

To conduct the cultural resources supporting analysis, the following tasks were completed:

- The original DEIS and FEIS cultural resource analyses were reviewed for accuracy and completeness, (i.e., to determine whether the original analyses were comprehensive by today's standards).
- Additional historical and archaeological site file and literature searches were completed to identify and update results from relevant projects that would add to the cultural resources affected environment and environmental consequences analyses in the 1988 FEIS. New and relevant information includes that generated after 1985, or following preparation of the initial Project cultural resources baseline report, as discussed in the next section.

##### **Evaluation of the 1988 FEIS Cultural Resource Analyses**

Cultural resource baseline data for the 1988 FEIS are primarily found in Appendix K of Volume 3B, "Los Banos - Gates Technical Appendices," which includes an abridged version of the earlier cultural resources project report (Chavez et al. 1986). The methodological approach incorporated in the report by Chavez and his co-authors is technically sound. The process included contacts with numerous offices and individuals

either holding archival data or possessing knowledge of the area's cultural resources. Topical areas included in the baseline data analysis included known and potential archaeological, historical, and Native American resources, along with an analysis of paleontological resources. Adequate culture histories for the prehistoric, historic, and ethnohistoric periods are included in the report. In addition, the earlier study incorporated a field data-gathering strategy that included an initial helicopter flyover of the then-included corridor alternatives, followed by ground inventory of selected areas within the corridors that were suspected of having a higher potential for cultural properties. For the western route under review here, the field effort included the following locations, acreage, and results:

- Los Banos Creek – 200 acres – two archaeological sites and one isolated artifact
- Ortigalita Creek – 250 acres – two archaeological sites
- Little Panoche Creek – 550 acres – seven archaeological sites
- Panoche Creek – 350 acres – three archaeological sites and two isolated artifacts
- Cantua Creek – 200 acres – one archaeological site and one historical site
- Los Gatos Creek – 500 acres – two archaeological sites and three isolated artifacts

Based on the known data and field results, Chavez and his associates prepared a set of maps indicating the locations of recorded archaeological, historic, ethnographic, and paleontological resource locations, along with areas along the study corridors thought to be those with high cultural resource potential.

Several Native American tribal organizations and individuals were consulted through letters, phone calls and, in some cases, visits (Chavez et al. 1986, pp. 20-21). The goals of the consultation included identifying (1) known but previously unrecorded Native American resources in the Project area and (2) any Native American concerns or issues that might be associated with the construction and operation of the transmission line. Although they were aware of former village locations in some areas, Native American contacts reported no known but undocumented villages, cemeteries, hunting and plant gathering locations, sacred or ceremonial places, or other culturally important geographic features within the proposed corridors. Tribal representatives did, however, feel that there was some potential for discovery of such resources that were not known to contemporary tribal members, especially some archaeological sites, cemeteries, and sacred and religious sites. Chavez et al. (1986, pp. 14, 21) noted that the potential for such resources was greater along the western route being considered in this analysis, because of the presence of relatively more undisturbed ground and environmental factors such as terraced areas adjacent to drainages, spring locations, potential rockshelter locations, and lithic materials sources.



## Updated Cultural Resources Baseline Information

### Methods

To identify cultural resource data that have been gathered since the original effort in support of the 1988 FEIS, visits and/or contacts were again completed with federal and state offices holding archival or database data, including:

- Bureau of Reclamation – Sacramento (literature review for relevant agency projects)
- Bureau of Land Management (BLM) – Sacramento (copies of General Land Office survey maps)
- BLM – Hollister (cultural site record search)
- National Park Service websites (National Register of Historic Places, Historic American Buildings Survey, Historic American Engineering Record, and national Historical Landmarks)
- Bureau of Indian Affairs websites (listing of federally recognized tribes and tribal entities that have petitioned for recognition; Indian Claims Commission findings)
- California Office of Historic Preservation (COHP) – Sacramento (current listings for the National Register of Historic Places, California Register of Historic Places, State Historical Landmarks, and State Points of Historical Interest)
- California Native American Heritage Commission – Sacramento (tribal listings and Sacred Lands Inventory)
- California Historical Resources Information System (CHRIS), Central California Information Center – Turlock (California Archaeological Inventory – Merced County: CCIC File#: 4291-I)
- CHRIS, Southern San Joaquin Valley Information Center – Bakersfield (California Archaeological Inventory – Fresno County: RS#01-359)

Aside from visits or contacts with the above offices, several documentary listings or pertinent sources were consulted, including: (1) an annotated site inventory of California rock art (Sonin 1995); (2) “The Field Directory of the California Indian Community” (California Department of Housing and Community Development 1996); (3) “California Points of Interest” (California Office of Historic Preservation 1992); (4) “Historical Atlas of California” (Beck and Haase 1974); (5) an ethnic historic site survey for California (California Office of Historic Preservation 1988); (6) “California Historical Landmarks” (California Office of Historic Preservation, 1996); (7) “California Inventory of Historic Resources” (California Department of Parks and Recreation 1976); (8) “Historic Spots in California” (Hoover et al. 1990); and (9) “Official Historical Atlas Map of Fresno County” (Thompson 1891). Finally, three publications related to Native American resources were reviewed: (1) “Native California Guide” (Eargle 2000); (2) “A Guide to the Indians of California, Their Locales and Historic Sites” (Eargle 1986); and (3) “California Indian Country: The Land and the People” (Eargle 1992).

As part of the records searches at the CHRIS Information Centers and the BLM-Hollister Field Office, areas within the corridor that have been surveyed for archaeological and historic resources were plotted, along with the locations of previously recorded sites, on a set of 7.5" U.S. Geological Survey topographic maps covering the entire corridor.

## **Results of the Supporting Analysis**

### **Archaeological and Historical Resources**

Some 17 cultural resource investigations have occurred within the two-mile-wide study area since the initial baseline cultural resources study was completed (Chavez et al. 1986). While these projects – all field surveys – have increased the known site list and the total amount of acreage covered within the study corridor, they essentially only add to the known cultural resources picture and do not raise additional issues beyond those included in the 1988 FEIS analysis.

All told, about 7 percent (6.25 miles) of the designated centerline within the 2,000-foot-wide study area has received some level of cultural resources inventory. A total of 37 archaeological and historical sites have been recorded within the larger two-mile-wide study area (Table D-1) for the route under consideration by Western. Only 10 of these sites fall within the narrower 2,000-foot-wide corridor, and three of the 10 have already been either inundated, excavated, or destroyed by the construction of the dam and reservoir in Little Panoche Creek. None of the recorded sites in the corridor has been evaluated for potential eligibility to the National Register of Historic Places.

The general area of Los Banos Creek crossed by the corridor is listed as both a California Point of Interest (California Office of Historic Preservation 1992) and a California Historical Landmark (No. 550) for its historical importance during the Spanish period (California Office of Historic Preservation 1996). Similarly, the general area of Cantua Creek crossed by the corridor is listed as a California Historical Landmark (No. 344) for its association with the notorious bandit Joaquin Murieta.

Reviews of the General Land Office maps for the Project area, and the similar maps in Thompson (1891), indicate a mid- to late-19<sup>th</sup> century presence of trails and wagon roads in each of the major drainages crossed by the corridor (Los Banos, Little Panoche, Panoche, Cantua, and Los Gatos); a wagon road running along the base of the foothills from Panoche to Cantua; and the Goshen Division of the Southern Pacific Railroad running east-west just north of the Gates Substation. The proposed transmission line corridor intersects each of these historic resources. Of these, only the Southern Pacific route has been recorded (P-10-003199), although traces of the wagon roads and trails may be indiscernible or destroyed by later road construction. Field verification would be necessary to determine if traces of these historic linear features remain within the transmission corridor.

## **Native American Resources**

The area that includes the proposed Los Banos - Gates transmission line corridor is generally believed to have been occupied by groups known as the “Northern Valley Yokuts” (Kroeber 1925; Latta 1949; Wallace 1978). The southern sector of the current Project area is very close to the boundary between the Northern and Southern Valley Yokuts subdivisions. For example, archaeological site P-10-000049, situated along Los Gatos Creek about seven miles west of the Gates Substation, has been identified as a Tachi Yokuts (Southern Valley) village occupied at the time of Spanish conquest. It is also broadly accepted that the area including the present Project was essentially depopulated of Indian people in the early 1800s due to “disease, missionization, and the sudden overrunning of their country by American miners and settlers” (Wallace 1978, pg. 462). Yokuts who survived the severe epidemics and contacts are believed to have moved south toward the southern valley sector or eastward where they joined Foothills Yokuts groups.

Native Americans are, however, present today within the general Central Valley area. The 1990 census noted that 7,119 Native Americans were living in Fresno County and another 1,516 in Merced County (figures quoted in California Department of Housing and Community Development 1996). In addition to the federally recognized tribes discussed below, the following seven Yokuts groups in the region have filed letters of Intent to Petition for such recognition with the Bureau of Indian Affairs:

- Choinumni Council, Fresno, CA (1988)
- Chukchansi Yokotch Tribe of Coarsegold, Raymond, CA (1985)
- Kern Valley Indian Community, Weldon, CA (1979)
- Chukchansi Yokotch Tribe of Mariposa, Mariposa, CA (1993)
- Wukchumni Council, Visalia, CA (1988)
- Traditional Choinuymni Tribe, Sanger, CA (2000)
- Sierra Foothills Wuksachi Yokuts Tribe, Sanger, CA (1999)

The closest federally recognized Native American community to the Los Banos - Gates Project is the Santa Rosa Rancheria, located about 20 miles east of the Gates Substation between the towns of Lemoore and Stratford. This rancheria includes about 170 acres and is occupied by about 200 individuals comprising 30 families of Tachi Yokuts, who formerly occupied the region around old Tulare Lake. Recent “Notices of Inventory Completion” required under provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) issued by the National Park Service have identified the Santa Rosa Indian Community as having under NAGPRA “a relationship of shared group identity” for human remains from both the Southern Valley and Northern Valley Yokuts areas, including Merced and Fresno counties. Consequently, this group would probably be the primary NAGPRA point of contact for the current Project. Other federally recognized nearby Native American communities with Yokuts

representation include five rancherias near the town of Fresno (North Fork, Picayune, Big Sandy, Table Mountain and Cold Springs), and the Tule River Reservation just east of Porterville. Fresno is located about 50 miles east of the corridor and Porterville lies some 75 miles to the southeast.

Reviews of recent cultural resources projects in the Project area, as well as contacts with the California Native American Heritage Commission, do not reveal the presence of any known traditional cultural properties, areas, or resources within the corridor study area. There is, however, direct archaeological evidence (e.g., site P-10-000129) within the 2,000-foot-wide corridor of proto-historic Native American presence, as well as other nearby known proto-historic villages, such as in Los Banos Creek, just south of the Los Banos Substation, and Los Gatos Creek, west of the Gates Substation.

## **Environmental Consequences of the Proposed Action on Cultural Resources**

As detailed in the analyses for the 1988 FEIS, construction of the Los Banos - Gates Transmission Line Project could have an undetermined effect on cultural resources. Chavez et al. (1986, pp. 72-84) include an adequate discussion of the range of potential direct and indirect impacts that could occur to archaeological, historic, and Native American resources that might be located within the final corridor right-of-way. They also discuss the need for additional field studies, including Native American consultation, and offer possible treatment options for mitigating adverse effects at cultural sites where potential direct or indirect impacts could occur.

In selecting the western corridor as the preferred alternative, the occurrence of previously undisturbed ground is more prevalent, although the potential for the presence of cultural resources is greatly reduced by the more rugged terrain in many areas along the corridor. The full range of potential impacts cannot be evaluated until more intensive field inventories are completed during the route selection and structure locations are identified. The field inventories will locate all archaeological, historical, and ethnographic resources within the right-of-way, transmission line centerline, structure locations, and other ground-disturbing features such as access roads and lay-down areas. These resources would be avoided to the maximum extent possible. Zones with the highest potential occurrence for cultural resources, primarily the drainages, intersected by the corridor, would be spanned by structure construction and line stringing activities. In addition, structure locations and access roads and other ground-disturbing activities would be located to avoid cultural resources. Avoidance of impacts to cultural resources would be Western's preferred mitigation; however, if avoidance were not possible, other treatment actions could be necessary, including data recovery.

Western is developing a Programmatic Agreement (PA) with the appropriate state and federal agencies and Indian tribes, as well as any other parties that would participate in

the Project. The PA will set forth guidelines for proper identification and evaluation of all cultural resources that could be adversely affected by construction and operation of the proposed transmission line. The PA will contain mitigation measures designed to eliminate or reduce, to the fullest extent possible, any adverse effects to cultural resources that are determined to be significant. The PA will also incorporate measures for the disposition of inadvertent discoveries of previously undetected cultural resources during construction activities, including the potential for inadvertent uncovering of human remains and subsequent consultation requirements. The PA will also include curation guidelines for cultural materials and Project records that may result from cultural resource mitigative actions. The PA will be completed prior to any ground-disturbing activities. The implementation of the PA would reduce impacts to cultural resources to less than significant levels.

**Table D-1. Previously Recorded Archaeological and Historical Sites in the  
Los Banos - Gates Study Corridor**

<b>Site Number</b>	<b>County</b>	<b>Site Type</b>	<b>Evaluation</b>	<b>Within Two-Mile-Wide Corridor</b>	<b>Within 2,000-Foot-Wide Corridor</b>
P-24-000369	Merced	Archaeological	Not Evaluated	Yes	Yes
P-24-000368	Merced	Archaeological	Not Evaluated	Yes	Yes
P-24-000420	Merced	Historic	Not Evaluated	Yes	Yes
P-24-000034	Merced	Archaeological	Not Evaluated	Yes	
P-24-000134	Merced	Archaeological	Not Evaluated	Yes	
P-24-000367	Merced	Archaeological	Not Evaluated	Yes	
P-24-000419	Merced	Historic	Not Evaluated	Yes	
P-24-000422	Merced	Archaeological	Not Evaluated	Yes	
P-24-000424	Merced	Archaeological	Not Evaluated	Yes	
P-24-000426	Merced	Archaeological	Not Evaluated	Yes	
P-24-000427	Merced	Archaeological	Not Evaluated	Yes	
P-24-000431	Merced	Historic	Not Evaluated	Yes	
P-24-000621	Merced	Los Banos Creek	CA Point of Historical Interest	Yes	Yes
P-15-000129	Fresno	Archaeological/ Ethnohistoric	Not Evaluated - Excavated	Yes	Yes
P-10-002007	Fresno	Archaeological	Not Evaluated	Yes	
P-10-000413	Fresno	Archaeological	Not Evaluated - Inundated	Yes	Yes
P-10-000414	Fresno	Archaeological	Not Evaluated – destroyed	Yes	Yes
P-10-001995	Fresno	Archaeological	Not Evaluated	Yes	
P-10-000389	Fresno	Archaeological	Not Evaluated - inundated	Yes	
P-10-001994	Fresno	Archaeological	Not Evaluated	Yes	
P-10-000046	Fresno	Archaeological	Not Evaluated	Yes	Yes
P-10-001997	Fresno	Archaeological	Not Evaluated	Yes	Yes

**Table D-1. Previously Recorded Archaeological and Historical Sites in the  
Los Banos - Gates Study Corridor**

<b>Site Number</b>	<b>County</b>	<b>Site Type</b>	<b>Evaluation</b>	<b>Within Two-Mile-Wide Corridor</b>	<b>Within 2,000-Foot-Wide Corridor</b>
P-10-004669	Fresno	Archaeological	Not Evaluated	Yes	
P-10-004670	Fresno	Archaeological	Not Evaluated	Yes	
P-10-000372	Fresno	Archaeological	Not Evaluated	Yes	
P-10-001878	Fresno	Historic	Not Evaluated	Yes	
P-10-001870	Fresno	Historic	Not Evaluated	Yes	
P-10-001876	Fresno	Historic	Not Evaluated	Yes	
P-10-001877	Fresno	Archaeological	Not Evaluated	Yes	
P-10-000052	Fresno	Archaeological	Not Evaluated	Yes	
P-10-004524	Fresno	Archaeological	Not Evaluated	Yes	
P-10-001998	Fresno	Archaeological	Not Evaluated	Yes	
P-10-004671	Fresno	Archaeological	Not Evaluated	Yes	
P-10-004672	Fresno	Archaeological	Not Evaluated	Yes	
P-10-000086	Fresno	Archaeological	Not Evaluated	Yes	
P-10-003199	Fresno	Historic	Not Evaluated	Yes	Yes
P-10-000619	Fresno	Archaeological	Not Evaluated	Yes	

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## Appendix E

### Los Banos - Gates Transmission Project

#### Supporting Analysis: *Summary of Mitigation Measures in the 1986 DEIS, Volume 2B, as Modified in the 1988 FEIS*

##### Introduction

This appendix summarizes the mitigation measures proposed in the 1986 DEIS, Volume 2B, Chapter 8, and modified in the 1988 FEIS. The mitigation measures are referenced to the sections of this Supplement Analysis where applicable.

##### 1.0 Siting Considerations

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"><li>Avoid active oil wells and water extraction wells and critical facilities. Cross noncritical facilities if resources cannot be avoided.</li></ul>	5.3 9.3
<ul style="list-style-type: none"><li>Work with the California Department of Water Resources (CDWR) to site structures compatible with the existing facilities at Little Panoche Reservoir (West-5) or the proposed facilities at the Los Banos Grandes Offstream Storage Project (West-3 and East).</li></ul>	6.3 7.3 8.3
<ul style="list-style-type: none"><li>Conduct site specific scoping sessions with the USFWS and the CDFG as required under Section 7 (Endangered Species Act, 1973, as amended) consultation procedures and the California Endangered Fish and Game Act to focus field studies, impact analysis, and potential mitigation assessments.</li></ul>	7.3 8.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Conduct ground surveys of potential sensitive plant habitat during the appropriate period, prior to selection of final alignments.</li> </ul>	7.3
<ul style="list-style-type: none"> <li>Develop detailed mitigation plans that define the extent and types of additional field studies and define how the results of these studies could be coordinated with detailed engineering surveys. As part of the siting process, develop numerous construction and siting details and present them to the regulatory agencies for review and comment. Where mitigation measures are specified in the plan, prepare field monitoring schedules and progress reports and submit them to the agencies. Biologists and archaeologists could accompany crews during the site selection and construction phases to ensure that sensitive resources are identified and avoided. Present the results of the siting and mitigation efforts for the Los Banos-Gates Project in a report of findings to appropriate agencies.</li> </ul>	5.3 6.3 7.3 8.3 13.3
<ul style="list-style-type: none"> <li>Ensure that technical specialists, including biologists, survey the preliminary alignment in the field to determine any site-specific conditions that can be avoided. For biological resources, these would include San Joaquin kit fox burrows and denning areas, areas where blunt-nosed leopard lizard occur, giant kangaroo rat burrows, raptor nesting areas, and productive wetlands areas.</li> </ul>	7.3 8.3
<ul style="list-style-type: none"> <li>Consult with Merced and Fresno county officials during the siting process.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>Locate new access roads parallel to contours of landform wherever feasible.</li> </ul>	3.3 5.3
<ul style="list-style-type: none"> <li>Avoid diagonal orientations of transmission lines across cultivated fields.</li> </ul>	9.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>If practical, adjust structure placement to avoid orchards and vineyards, row crops, and furrow-irrigated crops (with structure-furrow angles greater than 61 percent). When possible, the alignment should avoid more heavily cultivated crops in preference for nonagricultural land or crops such as alfalfa, corn, and small grains.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>When locating structures in row crops is unavoidable, if possible, give preference to fields with rows that would be parallel, rather than perpendicular, to the transmission line.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>Place transmission lines and structures toward the center of the field where possible. Avoid placing structures at the edge of fields where canals or irrigation ditches are located.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>Avoid angular joining of transmission line alignments.</li> </ul>	9.3 10.3
<ul style="list-style-type: none"> <li>Avoid mechanical move irrigation systems. Select crops using flood or border check irrigation over those using furrow irrigation.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>Avoid placing structures in areas where riparian vegetation or other vegetation communities of value occur.</li> </ul>	6.3 7.3 8.3
<ul style="list-style-type: none"> <li>Avoid siting structures on ridgelines and hilltops wherever possible. This measure will serve to reduce the incidence of "skylining;" that is, positioning a structure so that it is seen silhouetted against the skyline. The measure will also help prevent highly visible alterations of land forms resulting from grading operations.</li> </ul>	5.3 10.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Minimize the number of structures visible from sensitive viewpoints within recreation areas.</li> </ul>	10.3
<ul style="list-style-type: none"> <li>In areas identified as visually sensitive, use a finish on the transmission structures that is dull and nonreflective.</li> </ul>	10.3
<ul style="list-style-type: none"> <li>Site temporary facilities, such as construction yards and conductor tensioning and splicing sites, in locations that minimize disruption of the landscape by landform alteration and vegetation removal.</li> </ul>	5.3 7.3
<ul style="list-style-type: none"> <li>Work with affected property owners, as necessary, on alignment and structure location during the right-of-way acquisition process.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>Select design parameters (i.e., conductor surface gradient, conductor diameter, and conductor configuration) and locate the transmission line route to avoid critical locations to reduce corona-induced radio and television interference to acceptable levels.</li> </ul>	12.3
<ul style="list-style-type: none"> <li>Conduct preconstruction field surveys to locate and record cultural and paleontological resources within the Project right-of-way and, in particular, resources that are situated at proposed facilities and roadway locations.</li> </ul>	13.3
<ul style="list-style-type: none"> <li>Avoid sensitive resources by locating construction activities in non-sensitive locations. Consultation with cultural and paleontological resource professionals during the siting of the transmission line will facilitate mitigation through avoidance.</li> </ul>	7.3 8.3 13.3
<ul style="list-style-type: none"> <li>Conduct cultural resource data recovery programs, through surface collection and excavation, at significant resource sites where adverse impacts cannot be otherwise mitigated.</li> </ul>	13.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Consult with Native Americans concerning Native American resources that cannot be mitigated through avoidance, in order to seek mutually acceptable solutions to minimize Project effects on significant resources.</li> </ul>	13.3

## 2.0 Short-Term Construction Measures

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Wet soil surfaces at a rate of 0.5 gallons of water per square yard two times per day for dust control. This measure reduces dust by about 50 percent.</li> </ul>	4.3
<ul style="list-style-type: none"> <li>When possible, schedule construction activities during periods of low wind to reduce fugitive dust emissions.</li> </ul>	4.3
<ul style="list-style-type: none"> <li>Frequently monitor and service all construction equipment to ensure conformance with exhaust standards.</li> </ul>	4.3
<ul style="list-style-type: none"> <li>Use existing roads for access wherever possible. Minimize number and length of new construction access roads, particularly in intensively farmed areas. Use temporary spur roads to structures and remove those roads not required for maintenance. Design access roads to the minimum standard necessary for construction and maintenance vehicle access.</li> </ul>	5.3 7.3 8.3 9.3
<ul style="list-style-type: none"> <li>Minimize vegetation stripping along the alignment.</li> </ul>	7.3
<ul style="list-style-type: none"> <li>Design drainage control structures to carry runoff at appropriate velocities. Use properly sized and installed culverts under permanent access road fill sections and discharge runoff to natural drainages that will not be overloaded.</li> </ul>	5.3 6.3
<ul style="list-style-type: none"> <li>Minimize steepness and unobstructed length of fill slopes. Protect new constructed fills from rain splash and surface runoff with slope protection, such as punch straw, tackifier, or jute netting.</li> </ul>	5.3 6.3



Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Replant temporarily disturbed areas with a mixture of perennial grasses, forbs, brush, shrubs, and tree species that will provide effective erosion control. Prepare a firm, rough seedbed on fill or cut slopes and apply appropriate types and amounts of fertilizers and seed mixtures. Consider reseeding with native plants only in sensitive areas not subject to grazing.</li> </ul>	5.3 6.3 7.3 9.3
<ul style="list-style-type: none"> <li>Avoid causative construction operations during the wet season. Moist soil is generally more susceptible to compaction than dry soil. Minimize the use of heavy equipment on agricultural land to avoid soil compaction.</li> </ul>	5.3 6.3
<ul style="list-style-type: none"> <li>Perform contour discharge or ripping operations at the conclusion of construction. This will loosen compacted soil and develop the seedbed for revegetation.</li> </ul>	5.3 7.3
<ul style="list-style-type: none"> <li>In agricultural areas where sites would be graded, stockpile topsoil. After construction, replace topsoil and grade the site to the original contours. If appropriate, reseal the site in accordance with agency or landowner objectives.</li> </ul>	5.3 7.3 9.3
<ul style="list-style-type: none"> <li>Add chemical additives to seedbed during revegetation to counteract potential chemical imbalances.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>Base the structure design on geotechnical evaluation and sound geotechnical engineering practice, including analysis for cut and fill slopes, compaction requirements, and surface or slope drainage.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>Where possible, avoid road construction on very steep slopes to minimize surface erosion and slumping.</li> </ul>	5.3 6.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Recontour, prepare the surface, and seed all roads, construction sites, and other disturbed areas not required for Project operation and maintenance.</li> </ul>	5.3 6.3 7.3 9.3
<ul style="list-style-type: none"> <li>As much as possible, avoid construction activities and land surface disturbance in the immediate vicinity of unique plant communities and habitat features, such as remnant sand dunes, rock outcrops, riparian zones, alkali areas, other wetlands, kit fox natal dens, and raptor nesting cliffs. These unique features will be determined in consultation with the resource agencies.</li> </ul>	5.3 7.3 8.3 10.3
<ul style="list-style-type: none"> <li>Avoid construction activities in watercourses and wetlands, since these areas are both infrequent and sensitive in the generally arid Project area.</li> </ul>	6.3 7.3 8.3
<ul style="list-style-type: none"> <li>Avoid work on unstable slopes and rock outcrops.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>Minimize surface-disturbing activities such as grubbing, grading, ditching, and filling to the extent possible.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>Provide fire protection measures and avoid releases of fuels, soils, and other hazardous substances to the ground and water.</li> </ul>	5.3 6.3 9.3
<ul style="list-style-type: none"> <li>Schedule activities to minimize construction in the specific vicinity of golden eagle nests or kit fox natal dens during the periods of greatest sensitivity (i.e., February through the end of the nesting or denning period).</li> </ul>	8.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>• Attach raptor nesting platforms to structures at intervals greater than one mile in raptor use areas. Place these on the structures in positions least likely to cause operation and maintenance problems. Nesting platforms would be determined in consultation with the CDFG during transmission line alignment analyses.</li> </ul>	8.3
<ul style="list-style-type: none"> <li>• Construct staging areas and pulling sites adjacent to roads where practical. Properly dispose of soil from construction activities.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>• Schedule construction whenever practical to minimize disruption of normal seasonal activities for both crop and rangeland.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>• Follow post-construction cleanup and removal practices detailed in Section 2.3.8 of the DEIS.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>• Whenever possible, shift construction areas (such as conductor pulling and splicing areas and construction yards) to nonagricultural land or less sensitive crops and areas of low wildlife value.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>• Repair existing roads damaged by activities related to the transmission line to a condition equal to or better than their condition prior to the construction of the transmission line.</li> </ul>	9.3
<ul style="list-style-type: none"> <li>• To the extent possible, predetermine the limits of construction activities, with activity confined within those limits. All construction vehicle movement outside the right-of-way should normally be restricted to predesignated access or public roads.</li> </ul>	5.3 9.3

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>Do not apply paint or permanent discoloring agents to rocks or vegetation to indicate survey or construction activity limits. Surveyors, flagging, or other suitable material should be used to delineate limits.</li> </ul>	10.3
<ul style="list-style-type: none"> <li>Where blasting is required for access roads or structure footings, recover and remove debris where practical.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>Remove excavated material or other construction materials following construction.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>In construction areas where excavation is not required, leave vegetation in place wherever possible and maintain the original contours in an undisturbed condition.</li> </ul>	7.3
<ul style="list-style-type: none"> <li>Where vegetation of high density or low diversity is encountered in the right-of-way, avoid clearing to a harsh right-of-way edge. Instead, emulate natural clearings with irregular edges.</li> </ul>	7.3

### 3.0 Long-Term Operation Mitigation Measures

Mitigation Measure	Supplement Analysis Section
<ul style="list-style-type: none"> <li>• Avoid permanent access road clearing to the extent possible, allowing the short annual grasses to cover the ground surface.</li> </ul>	5.3
<ul style="list-style-type: none"> <li>• Either permanently close all access roads not required for maintenance, using the most effective and least environmentally damaging methods appropriate to the landowners, or regrade, put to bed, and revegetate the roads with concurrence of landowner.</li> </ul>	5.3 7.3 9.3
<ul style="list-style-type: none"> <li>• Resolve AM radio and television interference complaints and make every reasonable effort to promptly correct the cause of the interference when it has been established that this interference is from Project facilities.</li> </ul>	12.3
<ul style="list-style-type: none"> <li>• To provide a basis for evaluating and correcting any adverse effects caused by the transmission line, measure radio and TV field strengths after the selection of the final transmission line alignment, prior to construction and operation of the transmission line. If complaints are received after operation of the line, take corrective measures to provide satisfactory service.</li> </ul>	12.3